

**ECONOMIC ANALYSIS
FINAL RULE**

**BOVINE SPONGIFORM ENCEPHALOPATHY: MINIMAL RISK REGIONS
AND IMPORTATION OF COMMODITIES
(APHIS DOCKET NO. 03-080-3)**

**U.S. Department of Agriculture
Animal and Plant Health Inspection Service**

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SUMMARY

Bovine spongiform encephalopathy (BSE) is a progressive, fatal neurological disease of cattle that is apparently spread primarily through the consumption of animal feed containing protein from ruminants infected with BSE. There is no treatment or vaccine available for BSE. Included in Title 9 of the Code of Federal Regulations (CFR), Parts 93-96, are regulations that prohibit the importation of ruminants and most ruminant products (meat and certain other products and byproducts) from (1) regions where BSE exists and (2) regions that present an undue risk of introducing BSE into the United States because of import requirements less restrictive than those that would be acceptable for import into the United States or because of inadequate surveillance.

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA APHIS) believes it is appropriate to recognize an additional category of regions that present a minimal risk of introducing BSE into the United States. This category will include (1) those regions in which a BSE-infected animal has been diagnosed, but in which measures have been taken that reduce the risk of BSE being introduced into the United States, and (2) those regions in which BSE has not been detected, but that cannot be considered BSE-free. APHIS will set forth factors to be considered before listing a region as one of minimal risk. Additional risk-mitigating measures may be required, such as age restrictions for ruminants imported from such regions.

On May 20, 2003, the Canadian Food Inspection Agency reported a case of BSE in a beef cow in northern Alberta. To prevent the introduction of this disease into the United States, APHIS issued an interim rule that lists Canada as a region where BSE exists, thereby prohibiting the importation of ruminants and most ruminant products from Canada, effective May 20, 2003.

Following the discovery of the BSE-infected cow, Canada conducted an epidemiological investigation of the BSE occurrence, and took action to guard against any spread of the disease, including the quarantining and depopulation of herds and animals determined to be possibly at risk for BSE.

The prohibition was modified on August 8, 2003, when USDA Secretary Veneman announced that certain ruminant-derived products would be allowed to enter from Canada under APHIS Veterinary Services permit. The decision was based on a review of international standards set by the International Office of Epizootics (OIE); an exhaustive epidemiological investigation into the BSE case by Canada, during which no other animals were found to be infected; and additional risk-mitigating measures put in place by Canada in response to a review of their investigation by an independent expert panel. The most important commodity that can enter by permit is boneless bovine meat from cattle less than 30 months.

Canada has requested that APHIS consider resumption of ruminant and ruminant product imports into the United States, based on information regarding Canada's veterinary infrastructure; disease history; practices for preventing widespread introduction, exposure, and/or establishment of BSE; and measures taken following detection of the disease. This rule will amend the CFR by establishing a category of regions that present a minimal risk of introducing BSE into the United States. It will set forth the factors to be considered when listing a region as one of minimal risk, as well as required risk-mitigating measures. The rule will list Canada as the only minimal-risk region at this time. Future requests received from other regions to be listed in this category will be evaluated.

This study analyzes ruminant and ruminant product imports from Canada that will be allowed to resume because of the rule. Expected benefits and costs are examined in accordance

with requirements of the Office of Management and Budget for benefit-cost analysis as described in Circular A-4, "Regulatory Analysis," which provides guidance for agencies on the analysis of economically significant rulemakings as defined by Executive Order 12866. Impacts for small entities are also considered, as required by the Regulatory Flexibility Act.

Although not addressed in the analysis, Canadian producers and suppliers of ruminants and ruminant products will clearly benefit from the resumption of exports to the United States. In 2002, about 90 percent of Canadian beef exports and virtually all (99.6 percent) of Canada's cattle exports were shipped to the United States. Canada's cattle producers reportedly had one million more head of cattle on their farms on July 1, 2004, than they did one year earlier. This increase is largely due to the collapse of Canadian cattle exports.

The commodities that will be allowed to be imported from Canada under specific conditions can be summarized as:

- Bovines, as long as they are slaughtered at less than 30 months of age, and as long as those bovines not imported for immediate slaughter are moved to a single feedlot prior to slaughter;
- Sheep and goats (ovines and caprines), as long as they are slaughtered at less than 12 months of age, and provided sheep and goats not imported for immediate slaughter are moved to a single designated feedlot prior to slaughter;
- Cervids of any age;
- Camelids (i.e., llamas, alpacas, guanacos, and vicunas);
- Meat from bovines, ovines, and caprines; and
- Certain other products and byproducts, namely, bovine livers and tongues, gelatin, and tallow.

Model and Assumptions

Cattle and beef imports comprise 99 percent of the value of commodities that will be allowed entry from Canada because of this rulemaking, and they are therefore the focus of the analysis. The model is a net trade, non-spatial partial equilibrium welfare model. Net trade is defined as the absolute value of the difference between exports and imports. Individual country trade with the United States is not modeled. Non-spatial means that price and quantity effects resulting from geographic differences in market locations are not included. Therefore, price and quantity effects obtained from the model are assumed to be the average of effects across geographically separated markets. Partial price equilibrium means that the model results are based on maintaining commodity price equilibrium in a limited portion of an overall economy.

Economic sectors not explicitly included in the model are assumed to have a negligible influence on the model results. Welfare refers to benefits or losses to society, as measured by changes in consumers' willingness to pay for commodities beyond their actual price (a measure of consumer surplus) and changes in producers' revenue beyond their variable costs (a measure of returns to fixed investment known as producer surplus).

This quantitative economic modeling approach is appropriate because the rule changes are specific to the US cattle and beef sectors, are focused in extent, and have only limited extensions into non-agricultural sectors of the economy. A disadvantage of the model is the lack of linkages between the cattle production and beef processing sectors. This disadvantage is addressed through the presentation of results from an agricultural multi-sector model which recognizes such linkages.

We estimate effects of additional supplies to the United States of fed cattle and feeder cattle, due to resumption of imports from Canada. The additional quantities of cattle, all things equal, will cause prices to fall. The model indicates the expected price decline, and the increase in quantity demanded and decrease in domestic production/supply that will occur in response to the fall in price. Summing welfare gains for consumers/buyers and losses for producers/suppliers (changes in consumer and producer surplus) yields estimated net benefits for the United States. For beef, we expect a small decline in imports from Canada with the rule due to the replacement of beef produced from fed cattle by beef produced from cows, as explained below. Estimated effects for beef are in the opposite direction from those for cattle, with losses for U.S. consumers/buyers outweighing gains for U.S. producers/suppliers. The effects for beef are much smaller than the effects for cattle.

Cattle Imports from Canada. There are three components to the number of cattle under 30 months that are expected to be imported from Canada: a quantity that would be imported normally, a quantity that would have entered if cattle imports from Canada were not prohibited (termed the backlog), and a quantity of fed cattle that would be expected to be displaced from slaughter in Canada by increased cow slaughter for the export of processing beef to the United States. For the first component, the quantities of fed and feeder cattle that would enter normally are based on average imports for 2001 and 2002: about 652,400 fed cattle and about 311,400 feeder cattle in 2005, with somewhat lesser quantities in years 2006-2009 because of assumed expanded slaughter capacity in Canada.

The backlog is the additional Canadian cattle that may have accumulated due to the closing of the border to live ruminant imports in May 2003. Importation of the backlog or some fraction of it would begin as soon as the rule is in effect, with most of these fed and feeder cattle

expected to enter in three to six months. Calculation of the size of the backlog is based on the change in Canada's cattle inventory from July 2003 to July 2004. The backlog may include about 394,500 fed cattle under 30 months and about 204,000 feeder cattle. The backlog of cattle over 30 months (not eligible for importation under the rule) may number about 462,500 head.

The third component of expected cattle imports, an additional supply of fed cattle, derives from another change included in the rule, namely, removal of the requirement that beef imported from Canada come from cattle slaughtered at less than 30 months. We expect this change to result in a large increase in cow slaughter in Canada for the export of processing beef to the United States. We discuss these expected effects here in greater detail.

Our assumptions regarding (i) the shift in Canada from slaughter of fed cattle under 30 months of age to slaughter of cattle (principally cows) over 30 months of age, for the export of processing beef to the United States, and (ii) the shipment to the United States of the fed cattle under 30 months of age not slaughtered in Canada, are based on relative prices and margins in the two countries for fed cattle, cows, fed beef, and processing beef. As of mid-November 2004, a Canadian packer could buy a cow for about US\$17 per cwt and sell the processing-grade beef for about US\$123 per cwt. He also could buy a fed steer or heifer at about US\$67 per cwt and sell the beef for about US\$132 per cwt. In the United States, the cow would cost a packer about \$55 per cwt and the beef would sell for about \$125 per cwt; a fed steer or heifer would cost about \$85 per cwt and the beef would sell for about \$135 per cwt.

Although differences in weights and dressing percentages do not permit the direct comparison of live animals to dressed meat, the difference between the relative purchase prices to sales prices indicate that the margin in buying cows and selling processing beef is much larger for a Canadian packer than it is for a U.S. packer. Canadian packers are prevented from taking

greater advantage of this large margin by Canada's relatively small market for cow beef.

Canadian production of processing beef has already displaced much of Canada's imported product. Without a larger demand, increased production would cause the Canadian price of processing beef to decline sharply.

The United States is already providing Canada with additional demand for beef from fed cattle, through the importation of boneless beef under permit from cattle slaughtered at less than 30 months of age. The United States, in a sense, is currently importing Canada's surplus production of fed beef. Allowing the United States to import Canadian beef from cattle slaughtered at more than 30 months of age would enable Canada to produce and sell much larger quantities of processing beef without fearing the significant price collapse that would likely occur if the entire additional product were only for the Canadian market.

That is not to say that the price of processing beef or cow prices in the United States would not decline from their current levels due to the supply from Canada, but we would not expect a sharp decline. Two facts concerning the U.S. supply of processing beef underlie this reasoning. First, U.S. cow slaughter is forecast to decline in 2005, as producers begin to rebuild herds that have been characterized by diminishing cow inventories for several years. Second, cow retention for herd rebuilding is also expected to take place in Australia and New Zealand, major foreign sources of processing beef for the United States. Their beef exports are forecast to remain largely unchanged in 2005. As long as principal Asian markets continue to prohibit entry of U.S. beef, any increase in imports of beef from Australia and New Zealand by these markets may limit the supply of beef from Australia and New Zealand to the United States.

With the rule, entry of Canadian steers and heifers is expected to result in steer and heifer prices in the two countries becoming more similar. For example, in 2002, fed steer prices in

Alberta averaged about US\$63 per cwt, while in the United States, the Nebraska Direct Choice steer price averaged about \$67 per cwt. Given the difference in mid-November 2004 prices for fed cattle, \$67 per cwt in Canada and \$85 per cwt in the United States, shipment of fed cattle to the United States will be an attractive alternative for Canadian producers, at least until Canadian prices rise to the level of U.S. prices (adjusted for grade differentials and minus transportation and transaction costs).

Prices for slaughter cows in the two countries are expected to continue to differ because Canadian cattle more than 30 months of age will not be allowed entry by the rule, despite a ready market for them at slaughter facilities located in the northern United States. Thus, in the absence of trade in those cattle, the backlog of cattle over 30 months of age will remain until increased cow slaughter in Canada reduces their inventory. We would expect the price of cows in Canada to increase as slaughter increases in response to opportunities to export beef from cattle more than 30 months of age to the United States. However, the margin earned from slaughtering cows in Canada and exporting the processing beef to the United States is likely to remain favorable (though decreasingly so as Canada's backlog of cattle more than 30 months of age is reduced).

It is assumed that the Canadian slaughter sector is operating at full capacity. Key to assumptions underlying this analysis is the willingness of Canadian slaughter facilities to add cow slaughter shifts or days to their operations at the expense of steer and heifer slaughter. We believe they would want to do so, given the price differentials in Canada and the United States and the opportunity for Canadian beef exports to the United States from cattle slaughtered at more than 30 months of age. With the rule, beef imported from Canada would no longer be required to come from a slaughter facility that either slaughters only cattle less than 30 months of

age or complies with an approved segregation process, which may permit increased flexibility in scheduling cow slaughter.

In 2005, APHIS expects this shift by Canada to exports of processing beef and additional fed cattle to the United States to take place throughout the year, not during one or two quarters as assumed for the backlog of steers and heifers under 30 months of age. Beyond 2005, additions to Canadian slaughter capacity are expected to allow increased slaughter of cattle of all ages. Canada has been able to increase its slaughter numbers during the past year, but the opening of new plants and major expansion of current processing facilities to accommodate increased cow slaughter will likely take some years. The lack of excess slaughter capacity in Canada and the described price differentials are the basis for the assumed shift to increased cow slaughter in Canada for the production of processing beef for export to the United States, and the assumed additional imports of Canadian fed cattle.

In 2005, the maximum number of imported fed cattle displaced from Canadian slaughter may equal the backlog of cattle over 30 months (assumed to be slaughtered for the export of processing beef to the United States), about 460,000 head. For years 2006-2009, we assume the number of fed cattle displaced from slaughter in Canada and exported to the United States to decline, as Canada's slaughter capacity increases and Canada's cow prices trend upward. However, all things equal, as long as live cattle imports from Canada are limited to animals less than 30 months and the U.S. demand for processing beef is high, beef imports from Canadian cow slaughter may be favored.

Uncertainty surrounds both the assumed backlog quantities and the quantity of fed cattle expected to be displaced by cow slaughter in Canada and exported to the United States. We

acknowledge these uncertainties by also conducting a sensitivity analysis using one-half of the assumed backlog and one-half of the assumed number of displaced fed cattle.

After the backlog of cattle has been imported, imports of cattle under 30 months of age from Canada are expected to continue at historic levels elevated by the importation of the fed cattle displaced from Canadian slaughter by the slaughter of cows. We expect the largest impact of the rule to occur during the first three to six months that the rule is in effect. In order to assess these very near-term price impacts, we estimate effects of the rule for the first and second quarters of 2005, in addition to the five-year analysis of welfare effects. As in the analysis of welfare impacts, we acknowledge uncertainty about the quantity of cattle that will enter from Canada by conducting a sensitivity analysis of near-term price effects using one-half of the assumed backlog and one-half of the assumed number of displaced fed cattle.

Beef Imports from Canada. Boneless beef entering from Canada under permit represents a large share of historic beef imports from Canada. Before the Alberta BSE discovery, Canada's share of U.S. beef imports was about 41 percent (90 percent of fresh/chilled beef imports and 4 percent of frozen beef imports). Currently, Canada's share of U.S. beef imports is about 32 percent (fresh/chilled beef, 85 percent; frozen, 3 percent). For this reason alone, the effect of the rule for beef imports would be much smaller than the effect for cattle imports. Canadian beef entering the United States by permit is included in the baseline for the analysis.

As described, we expect Canadian cows to be slaughtered in place of fed cattle for the export of processing beef to the United States, given Canada's limited capability to increase its slaughter capacity in the short term. A cow that is slaughtered produces less meat than a fed steer or heifer due to a lighter weight and lower dressing percentage. Recent statistics from

Canada indicate an average difference in beef produced from one steer/heifer and one cow of 150 pounds. In 2005, assuming Canada is fully utilizing all available slaughter capacity, the decrease in beef production would total about 69 million pounds if the backlog of about 460,000 cattle over 30 months of age is slaughtered in place of steers and heifers. To take into consideration possible declines in Canada's domestic consumption of beef as beef prices rise slightly relative to other meats, and therefore movement of beef from the domestic to export markets, we reduce the decline of 69 million pounds by one-third, to 46 million pounds.

The forecast for Canada's beef exports worldwide in 2005 is 570,000 metric tons. U.S. imports of beef from Canada are forecast to equal about 86 percent of Canada's total beef exports, or about 490,200 metric tons. The 490,200 metric tons is equivalent to about 1,081 million pounds. In other words, Canada's beef exports to the United States, compared to what would have been exported without this rule, can be expected to decline in 2005 by 4.3 percent (46 million pounds divided by 1,081 million pounds) because of the displacement of steer/heifer slaughter by cow slaughter in Canada. The decrease in Canadian beef exports to the United States because of this displacement is assumed to diminish in years 2006-2009, as Canada's slaughter capacity expands.

Processing-grade beef is not perfectly substitutable for fed beef. The two commodities compete in different but closely related markets. This distinction is not included in the analysis since the model is based on aggregate beef price ranges and elasticities. Increased supplies of processing beef are expected to compete with fed beef in the same fashion as other close substitutes. Thus, allowing imports of beef from cattle slaughtered at over 30 months of age, together with fed cattle imports augmented by the cattle displaced from Canadian slaughter, is expected to result in lower prices for U.S. steers and heifers.

As with the assumed backlog and displaced fed cattle imports, there is uncertainty as to the amount of beef from Canadian cow slaughter that will be imported by the United States. Accordingly, we include in the sensitivity analysis a reduction by one-half of the assumed change in beef imports from Canada. In 2005, for example, this reduced amount would represent a decrease in beef imports from Canada of 2.1 percent from what would have been imported without the rule.

Welfare and Near-term Price Effects of the Rule for Cattle and Beef

Welfare effects. Welfare effects of the rule for cattle and beef are summarized in Table

I. Present values and annualized values of welfare gains and losses over the five-year period 2005-2009, are determined using 3 percent and 7 percent discount rates, in both 2005 and 2001 dollars.

Table I. Present and annualized value estimations of effects of the rule for fed cattle, feeder cattle, and beef, discounted at 3 percent and 7 percent, in 2005 and 2001 dollars, 2005-2009

<u>Present Value</u>	<u>Discount Rate</u> (Percent)	<u>Changes in Welfare</u>		
		<u>Consumer</u>	<u>Producer</u>	<u>Net</u>
		(Thousand Dollars)		
2005 Dollars	3	\$2,982,088	-\$2,907,462	\$74,626
	7	\$2,592,201	-\$2,525,852	\$66,349
2001 Dollars	3	\$2,810,618	-\$2,740,283	\$70,335
	7	\$2,443,150	-\$2,380,616	\$62,534
<u>Annualized Value</u>				
2005 Dollars	3	\$651,153	-\$634,858	\$16,295
	7	\$632,214	-\$616,032	\$16,182
2001 Dollars	3	\$613,711	-\$598,353	\$15,358
	7	\$595,861	-\$580,610	\$15,251

Note: The present and annualized values are midpoints taken from Appendix H, based on assumed import of the backlog, import of the fed cattle displaced from slaughter in Canada by increased cow slaughter for the export of processing beef to the United States, and beef imports from cows slaughtered in place of fed cattle.

The present value of the net benefit of the rule for cattle and beef is estimated to range in 2005 dollars between \$66.3 million and \$74.6 million, depending on the discount rate used. Over the five-year period, the annualized value of the net benefit in 2005 dollars, depending on the discount rate, ranges between \$16.2 million and \$16.3 million.

The largest effects for cattle are expected to occur in 2005, when the backlog would be imported and the Canadian displacement of fed cattle slaughter by cow slaughter would be largest. The impact for fed cattle would be greater than for feeder cattle because of the larger number of fed cattle expected to be imported. For fed cattle, the annual price declines may range from 3.2 percent in 2005, to 1.3 percent in 2009. For feeder cattle, the price declines may range from 1.3 percent in 2005, to 0.6 percent in 2009. Estimated net benefits in 2005 for fed cattle are estimated to range from \$25.0 million to \$26.9 million, and for feeder cattle, from \$10.4 million to \$11.0 million. In each successive year the net benefits are expected to become smaller, such that by 2009 they may range for fed cattle from \$3.8 million to \$4.3 million, and for feeder cattle, from \$4.3 million to \$4.8 million.

Effects of the rule attributable to the change in beef imports from Canada are expected to be much smaller than those for cattle. For example, the expected 2005 net welfare loss (because of the decline in imports due to cow slaughter replacing fed cattle slaughter) in 2005 dollars is estimated to range between \$94,000 and \$98,000. Average percentage increases in price may range from 0.09 percent in 2005, to 0.01 percent in 2009, suggesting nearly negligible impacts. If the beef-equivalent of the fed cattle and feeder cattle imported from Canada is considered, the supply of beef in the United States increases and the price of beef decreases by 1-2 percent from 2005 baseline levels. Smaller decreases from baseline projections would occur after 2005 because the volume of imported animals declines.

Effects may be even smaller for U.S. producers than these percentages indicate, given that nearly all U.S. beef imports from countries other than Canada is processing beef. Demand for imported processing beef has increased dramatically as ground beef sales continue at a robust pace. At the same time, U.S. production of processing beef has fallen to record lows because of the cyclical decline in cow slaughter.

Table II shows the results of the sensitivity analysis, assuming importation of one-half of the backlog, one-half of the fed cattle expected to be displaced from slaughter in Canada, and one-half of the expected replacement of beef imports derived from fed cattle by beef imports derived from cows. The present value of the net benefit for cattle and beef in this case is estimated to range in 2005 dollars between \$48.9 million and \$56.1 million, depending on the discount rate used. Over the five-year period, the annualized value of the net benefit in 2005 dollars, depending on the discount rate, may range between \$11.9 million and \$12.3 million, that is, about three-fourths of the expected annualized net benefit with the rule.

Table II. Sensitivity analysis based on reduced import quantities: present and annualized value estimations of effects of the rule for fed cattle, feeder cattle, and beef, discounted at 3 percent and 7 percent, in 2005 and 2001 dollars, 2005-2009

<u>Present Value</u>	<u>Discount Rate</u> (Percent)	<u>Changes in Welfare</u>		
		<u>Consumer</u>	<u>Producer</u>	<u>Net</u>
		(Thousand Dollars)		
2005 Dollars	3	\$2,571,323	-\$2,515,180	\$56,144
	7	\$2,211,115	-\$2,162,168	\$48,947
2001 Dollars	3	\$2,423,472	-\$2,370,557	\$52,915
	7	\$2,083,976	-\$2,037,844	\$46,132
<u>Annualized Value</u>				
2005 Dollars	3	\$561,460	-\$549,201	\$12,259
	7	\$539,270	-\$527,333	\$11,938
2001 Dollars	3	\$529,176	-\$517,622	\$11,554
	7	\$508,262	-\$497,011	\$11,251

Note: The present and annualized values are midpoints taken from Appendix I, based on assumed imports of one-half of the backlog, one-half of the displaced fed cattle numbers, and one-half of the replacement of fed cattle beef imports by cow beef imports.

In this scenario, the impact in 2005, in particular, would be smaller because of the fewer cattle imported. For fed cattle, the annual price declines may range from an average of 2.3 percent in 2005, to 1.2 percent in 2009. For feeder cattle, the price declines over the five-year period may average 0.7 percent. Estimated net benefits in 2005 for fed cattle may range from \$12.9 million to \$13.9 million, and for feeder cattle, from \$8.0 million to \$8.5 million. In each successive year the net benefits are expected to become smaller, such that by 2009 they may range for fed cattle from \$3.5 million to \$3.9 million, and for feeder cattle, from \$4.3 million to \$4.8 million.

The estimated percentage decrease in the price of fed cattle, if one-half of the backlog and one-half of the fed cattle expected to be displaced from slaughter in Canada were imported, would be about 1 percent less than when we assume importation of the full backlog and full quantity of displaced fed cattle (2.3 percent decrease, compared to a 3.2 percent decrease). For

feeder cattle, the difference in the impact is smaller in absolute terms, but larger in relative terms (0.6 percent decrease, compared to a 1.3 percent decrease). In both cases, the impacts are expected to diminish over the five-year period.

Near-term price effects. As expected, price impacts are larger when the backlog is assumed to enter in one quarter rather than two quarters, and are larger for fed cattle than for feeder cattle, given the larger number of fed cattle expected to be imported. For example, for fed cattle the decrease in price when the backlog is assumed to enter entirely within one quarter is estimated to be 5.4 percent, assuming a price elasticity of supply of 0.61 and a price elasticity of demand of -0.76. When the backlog of fed cattle is assumed to enter over two quarters using the same price elasticities, the decline in price is estimated to be 3.8 percent. Entry of the backlog of feeder cattle over the two quarters could result in price declines of 1.9 percent, for the same elasticities, compared to a possible price drop of 3.3 percent when they enter entirely within one quarter.

The less elastic the price elasticities (the less responsive sellers and buyers are to price changes), the larger the expected percentage changes in price. When the supply and demand elasticities are halved (supply elasticity of 0.30, and demand elasticity of -0.38), for example, and fed cattle are assumed to enter within two quarters, the decrease in price could be 4.8 percent, compared to a decrease of 3.8 percent when a supply elasticity of 0.61 and demand elasticity of -0.76 are used.

When the assumed backlog and assumed number of imported fed cattle displaced from Canadian slaughter are halved as a sensitivity analysis, the near-term price effects are found to be smaller overall, with the smaller elasticities again yielding larger price decreases. For example, the percentage decrease in price for fed cattle entering over two quarters is estimated

to be 2.5 percent for a supply elasticity of 0.61 and a demand elasticity of -0.76 (compared to a 3.8 percent price decline when the full backlog and number of displaced fed cattle are imported). If the supply elasticity were 0.30 and the demand elasticity were -0.38, the price decline is estimated to be 3.2 percent (compared to 4.8 percent for the full cattle import numbers). Similarly, smaller percentage price declines are observed for feeder cattle when in the sensitivity analysis the backlog and the number of imported fed cattle displaced from Canadian slaughter are halved.

Other Impacts of the Rule

We consider other effects of the rule besides those estimated for cattle and beef, including: the results of an agricultural multi-sector analysis; costs that may be incurred in monitoring the movement of imported Canadian feeder ruminants; effects for ruminant products other than cattle and beef; and possible effects of the rule for U.S. exports.

Multi-sector Analysis. Some commenters on the analysis for the proposed rule emphasized the integrated structure of the cattle and beef processing industries, and noted potential effects of the rule on other sectors of the economy. APHIS agrees that a multi-sector analysis can capture industry interactions that are missing from single-sector analyses. We therefore report the results of an analysis based on a model that includes the animal feed, animal production, and animal product processing sectors.

While the major vertically linked marketing channels are included in this model, effects of the rule further downstream in the economy are not modeled. For example, economic benefits to surrounding communities of increased employment in slaughter plants receiving greater supplies of cattle due to reopening of the Canadian border are not captured by the model, nor are similar economic losses resulting from reduced spending in communities by cattle producers due

to reductions in their returns. These impacts are believed to be very small on a national basis but may show some geographic concentration.

The multi-sector analysis simulates percentage changes in prices and gross revenues (price multiplied by the quantity sold) using the assumed 2005 range of imported Canadian cattle (roughly 1.5 million to 2 million head, fed and feeder cattle combined). The results of the analysis show for the combined livestock, feed, and grain sectors, a possible decline in gross revenues of 1.4 percent to 1.7 percent. For the beef and cattle sectors, the gross revenue declines may range from 1.3 percent to 1.6 percent, and from 3.9 percent to 4.8 percent, respectively.

With respect to the change in the price of cattle in 2005, the multi-sector analysis indicates a possible decline of between 3.3 percent and 4.1 percent, compared to 2005 price declines estimated in the single-sector analyses of between 0.6 percent and 1.3 percent for feeder cattle, and between 2.3 percent and 3.2 percent for fed cattle. To the extent that sector interactions result in expanded effects as indicated by these relative price declines, welfare gains and losses will be larger than are indicated in Table I. The multi-sector model simulates price and revenue changes, but does not yield measures of welfare change. However, this model does indicate a decline in consumer expenditures by about 1 percent, a finding that supports the estimated consumer welfare gains attributable to the rule.

The multi-sector analysis also examines possible impacts if beef consumption in the United States were to decline by 2 percent because of consumers' perception of increased risk of BSE with the rule. Compared to the assumption of no consumer response, this scenario shows that there would be a decline in beef and cattle prices by an additional 0.2 percent to 0.4 percent, causing gross revenues for the beef and cattle sectors to fall by an additional 0.2 percent to 0.5 percent.

A third scenario considered in the multi-sector analysis is partial restoration of beef exports to Japan, such that U.S. beef exports in 2005 would double, from an expected 0.3 million metric tons to 0.6 million metric tons. In this instance, gross revenue for the cattle sector (assuming 1.5 million head of Canadian cattle are imported) could decline by 1.7 percent, compared to a possible decrease of 3.9 percent assuming no change in U.S. beef exports. For the beef sector, gross revenue losses of 1.3 percent may become gains of 2.2 percent because of the exports to Japan. For both sectors, increased U.S. exports could moderate by at least one-half the price declines due to resumption of cattle imports from Canada.

Monitoring the Movement of Feeder Cattle. Movement within the United States of feeder cattle (and feeder lambs and goats) imported from a BSE minimal-risk region such as Canada—from the U.S. port of entry to a feedlot and from the feedlot to slaughter—will require that certain inspection and record keeping safeguards be satisfied. The increased cost of these requirements is considered a cost to this rulemaking. These include certification of each animal's identification (by eartag and branding), age, and feeding history. Feeder cattle will be listed on the APHIS Form VS 17-130 that accompanies the animals from the port of entry and on the APHIS Form VS 1-27 that accompanies the animals to slaughter.

Costs of the process can be approximated by considering the time Federal or State officials or their designees would spend monitoring the movement of these cattle. We approximate the cost of performing the inspections and related tasks to be about \$10 per animal, based on direct salary, personnel benefits, administrative support costs, agency overhead, and departmental charges, and using a simplified example developed by APHIS Veterinary Services. Given the number of feeder cattle that may enter because of the rule, the overall cost in 2005 would be between \$4.1 million and \$5.2 million.

Commodities other than Cattle and Beef. Other, less major commodities that will be allowed entry under the rule and for which we have data are sheep, goats, and farmed cervids; meat from these ruminants; and bovine tongues and livers. In all cases, reestablished imports from Canada will have small effects on the U.S. supply of these commodities and the welfare of U.S. entities. Feeder lambs and goats will be required to be moved to designated feedlots. As with feeder cattle from Canada, movement of feeder lambs and goats from the port of entry to feedlot and from feedlot to slaughter will be monitored, which will lead to a small cost.

U.S. Exports. The rule, of course, will have no immediate effect for U.S. exports to countries that currently prohibit beef imports from the United States. It could influence these countries' future decisions regarding resumption of beef imports from the United States. A country may consider the rule to lend justification to a decision to continue to prohibit entry of U.S. beef because of concern about BSE risks posed by Canadian cattle, even though there would be no scientific basis. In such a case, there would be continued premium losses over and above the domestic value of the products, especially for beef variety meats. On the other hand, resumption of U.S. imports from Canada may help convince other countries of the sanitary safety of both U.S. and Canadian beef. Any effects the rule may have for future U.S. beef exports may vary from one trading partner to another.

Alternatives to the Rule

Alternatives to the rule would be to leave the regulations unchanged, that is, continue to prohibit entry of ruminants and most ruminant products from regions of minimal BSE risk (other than products allowed entry under permit), or modify the commodities and/or import requirements specified in the rule. By maintaining current import restrictions, the net benefits of reestablishing imports from Canada of fed and feeder cattle and beef not by permit, and other

affected commodities would not be realized. Two possible modifications would be to (i) require that imported beef come from cattle slaughtered at less than 30 months, or (ii) continue to prohibit the entry of live ruminants.

Beef only from Cattle less than 30 Months. The proposed rule would have required beef imports from Canada to come from cattle slaughtered at less than 30 months. In a notice that reopened the comment period for the proposed rule, APHIS stated that it no longer believed that it would be necessary to require that beef imported from BSE minimal-risk regions be derived only from cattle less than 30 months of age, provided measures are in place to ensure that specified risk materials (SRMs) are removed when the animals are slaughtered, and that such other measures as are necessary are in place. Canada is removing SRMs at slaughter and fulfilling other required measures.

Requiring that beef come only from cattle slaughtered at less than 30 months would continue the prohibition on Canadian cows and bulls as source animals, and eliminate impacts of the rule for beef. Continuing to limit imports from Canada to veal from calves and beef from steers and heifers would cause Canada's cow and bull inventories to continue to grow and exert downward pressure on Canada's cow prices, which are already well below U.S. price levels. Canadian suppliers would be prevented from participating in the current high-demand market in the United States for processing beef, and U.S. processors would not benefit from the additional source of supply during a time when U.S. cow slaughter is cyclically low.

This alternative would maintain the status quo in terms of beef imports, other than removing permit requirements and broadening the commodities allowed to be imported beyond boneless beef. In terms of the quantity of beef imported, we expect that these changes would have a very small effect, given the large share of Canada's historic exports that enter currently.

This alternative would affect cattle imports from Canada by removing the incentive for Canadian cows to be slaughtered in place of fed cattle, since the processing beef would not be allowed to be imported by the United States; there would not be the displaced fed cattle assumed to be available for import under the rule. The number of fed cattle imports would be fewer than with the rule, especially in 2005, and price and welfare impacts, including net benefits, would be smaller.

Welfare effects of this alternative for cattle and beef are summarized in Table III.

Present values and annualized values of welfare gains and losses over the five-year period 2005-2009, are determined using 3 percent and 7 percent discount rates, in both 2005 and 2001 dollars.

Table III. Alternative of Canadian beef imports only from cattle less than 30 months: present and annualized value estimations of effects of the rule for fed cattle, feeder cattle, and beef, discounted at 3 percent and 7 percent, in 2005 and 2001 dollars, 2005-2009

<u>Present Value</u>	<u>Discount Rate</u> (Percent)	<u>Changes in Welfare</u>		
		<u>Consumer</u>	<u>Producer</u>	<u>Net</u>
		(Thousand Dollars)		
2005 Dollars	3	\$2,399,299	-\$2,345,160	\$54,139
	7	\$2,064,181	-\$2,016,794	\$47,387
2001 Dollars	3	\$2,261,339	-\$2,210,314	\$51,026
	7	\$1,945,490	-\$1,900,828	\$44,662
<u>Annualized Value</u>				
2005 Dollars	3	\$523,898	-\$512,076	\$11,821
	7	\$503,434	-\$491,877	\$11,557
2001 Dollars	3	\$493,774	-\$482,632	\$11,142
	7	\$474,487	-\$463,594	\$10,893

Note: The present and annualized values are midpoints taken from Appendix U, based on the assumed backlog imports.

The present value of the net benefit of the alternative for cattle and beef is estimated to range in 2005 dollars between \$47.4 million and \$54.1 million, depending on the discount rate used (with the rule: between \$66.3 million and \$74.6 million). Over the five-year period, the

annualized value of the net benefit in 2005 dollars, depending on the discount rate, may range between \$11.6 million and \$11.8 million (with the rule: between \$16.2 million and \$16.3 million).

The largest effects for cattle are expected to occur in 2005, when the backlog is imported. Since allowing Canadian beef imports only from cattle slaughtered at less than 30 months would not affect the number of feeder cattle expected to be imported, impacts for feeder cattle would be the same as with the rule.

Possible effects of this alternative for future U.S. exports would differ from possible effects with the rule only if other countries perceived BSE-risks associated with Canadian beef produced from cattle slaughtered at less than 30 months as different from those associated with Canadian beef produced from cattle slaughtered at more than 30 months.

There would be no known reduction in risk of BSE introduction under this alternative. Removal of SRMs at slaughter and other required risk-mitigating measures of the rule will ensure that beef entering from Canada satisfies animal health criteria the same as or equivalent to those required in the United States.

Near-term price effects of this alternative would be similar to those of the rule. For example, for fed cattle the decrease in price when the backlog is assumed to enter entirely within one quarter is estimated to be 4.4 percent (with the rule: 5.4 percent), assuming a price elasticity of supply of 0.61 and a price elasticity of demand of -0.76. When the backlog of fed cattle is assumed to enter over two quarters using the same price elasticities, the decline in price is estimated to be 2.8 percent (with the rule: 3.8 percent). Entry of the backlog of feeder cattle over the two quarters could result in a price decline of 1.9 percent under this alternative and using the same elasticities, compared to a possible price drop of 3.3 percent when the backlog

is assumed to enter entirely within one quarter. The expected impacts are the same for feeder cattle under this alternative and with the rule because their number is assumed to be unaffected by whether or not Canadian beef imports are restricted to coming from cattle less than 30 months. When the supply and demand elasticities are halved (supply elasticity of 0.30, and demand elasticity of -0.38), for example, and fed cattle are assumed to enter within two quarters, the decrease in price is estimated to be 3.6 percent (with the rule, 4.8 percent), compared to a decrease of 2.8 percent (with the rule, 3.8 percent) when a supply elasticity of 0.61 and demand elasticity of -0.76 are used.

No Live Ruminants. Direct effects of this alternative would be equivalent to expected effects of the rule only for ruminant products. We would expect the same impact for beef as with the rule; imports of beef from cows would replace imports of beef from fed cattle, yielding for the five-year period 2005-2009, present value losses for consumers of between \$73.9 million and \$78.8 million, gains for producers of between \$73.7 million and \$78.5 million, and net welfare losses of between \$264,000 and \$283,000, compared to the baseline (3 percent discount rate, 2005 dollars). There would also be net benefits forgone by the continued prohibition on the importation of sheep and goats. Possible impacts of this alternative on future U.S. exports would likely be small, since it would maintain the current prohibition on imports of live ruminants from Canada.

In sum, the rule is preferable, in terms of expected net benefits, to the status quo (continuing to prohibit the entry of Canadian ruminants and the entry of Canadian ruminant products other than those allowed by permit), and to the two alternatives discussed: limiting beef imports to cattle slaughtered at less than 30 months or allowing entry of ruminant products but not live ruminants. Risks of BSE introduction would not be reduced to any known degree by

selecting one of the alternatives in place of the rule. We believe that listing Canada as a minimal-risk region subject to the required risk-mitigating measures is a balanced response, based on scientific evidence, to Canada's request that certain ruminant and ruminant product imports by the United States be allowed to resume.

Final Regulatory Flexibility Analysis

As a part of the rulemaking process, APHIS evaluates whether regulations are likely to have a significant economic impact on a substantial number of small entities. The resumption of ruminant and ruminant product imports from Canada will most importantly affect the cattle industry, reducing prices and increasing supplies. Entry of fed cattle (and fed sheep and goats) will benefit U.S. slaughtering establishments, and entry of feeder cattle (and feeder sheep and goats) will benefit feedlots. Also, entry of beef from cattle slaughtered at over 30 months will benefit some U.S. meat and meat product wholesalers and processors by providing an additional source of processing beef. At the same time, these imports will increase the competition for U.S. and foreign suppliers of these commodities.

The main industries expected to be affected by the rule are composed predominantly of small entities, as indicated by the 1997 Economic Census, the 2002 Census of Agriculture, and USDA's "Cattle on Feed" (February 20, 2004). The small entities number in the hundreds of thousands, with cattle producers comprising the largest number. For beef cattle ranching and farming, the 2002 Census of Agriculture indicates a total of about 657,000 operations, of which nearly 656,000 are considered small entities. For cattle feedlots, more than 91,000 of the approximately 93,200 total operations are small entities. For sheep and goat farming, 44,000 out of about 44,200 operations are considered small entities. Small entities similarly dominate, in

terms of the percentage of operations, other affected industries, including animal slaughtering, meat and meat byproduct processing, and meat and meat product wholesaling.

Notwithstanding the prevalence of small entities, the concentrated structure of affected industries is well-documented. In the U.S. meatpacking industry, for example, four firms handle nearly 80 percent of all steer and heifer slaughter. The cattle feedlot industry is also highly concentrated. Data from 2003 show that only 2 percent of feedlots have capacities greater than 1,000 head, and yet these larger feedlots market 85 percent of fed cattle.

Imports from Canada that will be allowed to resume are expected to have a larger effect on the fed cattle market than on the feeder cattle market. Prices and welfare of producers and suppliers will decline because of the additional supply and the welfare of consumers and buyers will increase. Net benefits of the rule will be positive.

The analysis provides an estimation of possible price impacts for small-entity and other producers and processors during the first three to six months that the rule is in effect, when impacts may be greatest due to the expected importation of the backlog. Depending on the assumed elasticities of supply and demand and the period over which the backlog enters, the estimated price declines could range from 1.9 percent to 4.4 percent for feeder cattle and from 3.8 percent to 6.9 percent for fed cattle. For the year 2005, the model indicates a possible decline in feeder cattle prices of 1.3 percent, and a possible decline in fed cattle prices of 3.2 percent.

To give these average percentage price declines some perspective, we consider as an example their effect on earnings by small U.S. beef cow herds. Based on data from the 2002 Census of Agriculture, the average value of sales of cattle and calves by small-entity beef cow operations was about \$26,700. Given the forecast feeder cattle baseline price for 2005 of between \$94 to \$100 per cwt, the 2005 estimated price decline of 1.3 percent would be

equivalent to a decrease of between \$1.22 and \$1.30 per cwt, or a decrease in annual revenue of between \$326 and \$347, assuming no reduction in the number of cattle marketed. This example abstracts from the wide range in size of small beef cow herds, but gives an indication of a possible average price impact of the rule for these operators in 2005. It should be recognized that while the decline in price would be a loss for producers, it would represent a gain for small-entity feedlot operators.

Beyond the net welfare gains as summarized in Table I, there will likely to regional impacts not captured in the analysis. Among comments received on the proposed rule were ones that pointed out the historical reliance of some northern U.S. meat processing plants (and the communities they support) on cattle imports from Canada to maintain necessary throughput volumes. Historical dependence of these processing facilities on cattle imports from Canada exemplifies economic ties with Canadian entities that existed prior to the prohibition on ruminant imports. Resumption of imports will enable trade relationships involving small-entity operations to be reestablished.

Alternatives to the rule, whether leaving the regulations unchanged or modifying the commodities and/or import requirements specified in the rule, would benefit certain categories of small entities while harming others. For example, a continued prohibition on the importation of Canadian feeder cattle would benefit small-entity suppliers of feeder cattle, but at the expense of small-entity feedlot operators. Estimated price declines, particularly in the near term, will cause economic losses for some entities and at the same time benefit other entities. Overall, the analysis indicates the rule will have a net positive effect for the United States.

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**ECONOMIC ANALYSIS
FINAL RULE**

**BOVINE SPONGIFORM ENCEPHALOPATHY: MINIMAL RISK REGIONS
AND IMPORTATION OF COMMODITIES
(APHIS DOCKET NO. 03-080-3)**

December 20, 2004

1. Introduction

Bovine spongiform encephalopathy (BSE) is a progressive, fatal neurological disease of cattle that is apparently spread primarily through the consumption of animal feed containing protein from ruminants infected with BSE.¹ There is no treatment or vaccine available for BSE. Included in Title 9 of the Code of Federal Regulations (CFR), Parts 93-96, are regulations that prohibit the importation of ruminants and most ruminant products (meat and certain other products and byproducts) from (1) regions where BSE exists and (2) regions that present an undue risk of introducing BSE into the United States because of import requirements less restrictive than those that would be acceptable for import into the United States or because of inadequate surveillance.

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA APHIS) believes it is appropriate to recognize an additional category of regions that present a minimal risk of introducing BSE into the United States. This category will include (1) those regions in which a BSE-infected animal has been diagnosed, but in which measures have been taken that reduce the risk of BSE being introduced into the United States, and (2) those regions in which BSE has not been detected, but that cannot be considered BSE-free. APHIS will set forth factors to be considered before listing a region as one of minimal risk. Additional

¹ There is also a possibility that in rare cases, mother to offspring transmission may occur, but this is unconfirmed. There is no evidence that BSE is transmitted directly from animal to animal.

risk-mitigating measures may be required, such as age restrictions for ruminants imported from such regions.

On May 20, 2003, the Canadian Food Inspection Agency reported a case of BSE in a beef cow in northern Alberta. To prevent the introduction of this disease into the United States, APHIS issued an interim rule that lists Canada as a region where BSE exists, thereby prohibiting the importation of ruminants and most ruminant products from Canada, effective May 20, 2003.² Following the discovery of the BSE-infected cow, Canada conducted an epidemiological investigation of the BSE occurrence, and took action to guard against any spread of the disease, including the quarantining and depopulation of herds and animals determined to be possibly at risk for BSE.

The prohibition was modified on August 8, 2003, when USDA Secretary Veneman announced that certain ruminant-derived products would be allowed to enter from Canada under APHIS Veterinary Services permit.³ The decision was based on a review of international standards set by the International Office of Epizootics (OIE); an exhaustive epidemiological investigation into the BSE case by Canada, during which no other animals were found to be infected; and additional risk-mitigating measures put in place by Canada in response to a review of their investigation by an independent expert panel. The most important commodity that can enter by permit is boneless bovine meat from cattle less than 30 months.⁴

Canada has requested that APHIS consider resumption of ruminant and ruminant product imports into the United States, based on information regarding Canada's veterinary

² *Federal Register*, Vol. 68, 31939-31940, May 29, 2003. Ruminant products that are not known to transmit BSE and are therefore eligible for entry include milk, milk products, ruminant hides, ruminant hide-derived products, and ruminant semen and embryos (under certain conditions).

³ For certain commercial ruminant products, "United States Veterinary Permit for Importation and Transportation of Controlled Material." For certain wild ruminants hunter-harvested for personal use, "Veterinary Services Special Permit for the Importation of Hunter-Harvested Wild Ruminant Meat."

⁴ A list of the products can be found at www.usda.gov/news/releases/2003/08/qa0281.htm.

infrastructure; disease history; practices for preventing widespread introduction, exposure, and/or establishment of BSE; and measures taken following detection of the disease. This rule will amend the CFR by establishing a category of regions that present a minimal risk of introducing BSE into the United States. It will set forth the factors to be considered when listing a region as one of minimal risk, as well as required risk-mitigating measures. The rule will list Canada as the only minimal-risk region at this time. Future requests received from other regions to be listed in this category will be evaluated.

This study analyzes ruminant and ruminant product imports from Canada that will be allowed to resume because of the rule. Expected benefits and costs are examined in accordance with Executive Order 12866. Impacts for small entities are also considered, as required by the Regulatory Flexibility Act.

Although not addressed in the analysis, Canadian producers and suppliers of ruminants and ruminant products will clearly benefit from the resumption of exports to the United States. In 2002, about 90 percent of Canadian beef exports and virtually all (99.6 percent) of Canada's cattle exports were shipped to the United States. Canada's cattle producers reportedly had one million more head of cattle on their farms on July 1, 2004, than they did one year earlier. This increase was largely because of the collapse of Canada's cattle exports.⁵

The commodities that will be allowed to be imported from Canada under specific conditions can be summarized as:

- Bovines, as long as they are slaughtered at less than 30 months of age, and as long as those bovines not imported for immediate slaughter are moved to a single feedlot prior to slaughter;

⁵ Statistics Canada, "The Daily," August 19, 2004.

- Sheep and goats (ovines and caprines), as long as they are slaughtered at less than 12 months of age, and provided sheep and goats not imported for immediate slaughter are moved to a single designated feedlot prior to slaughter;
- Cervids of any age;
- Camelids (i.e., llamas, alpacas, guanacos, and vicunas);
- Meat from bovines, ovines, and caprines; and
- Certain other products and byproducts, namely, bovine livers and tongues, gelatin, and tallow.

The remainder of the Introduction is devoted to a discussion of changes to the rule from what was initially proposed, changes in the analysis from that which accompanied the proposed rule, and the organization of the analysis.

Changes to the Rule

Some changes and additions to the final rule from that which was proposed are: not requiring that beef imported from Canada come from cattle less than 30 months at the time of slaughter; not requiring that bovines not for immediate slaughter be moved to a designated feedlot, but only to a single feedlot before slaughter; specification of criteria for designated feedlots for sheep and goats; specification of inspection and certification requirements for bovines, ovines, and caprines imported not for immediate slaughter; and allowing importation of camelids and cervids not for immediate slaughter.

Boneless beef currently entering from Canada by permit is required to come from cattle slaughtered at younger than 30 months. This age-at-slaughter limitation will be eliminated by this rule, due to the equivalence of Canada's requirements regarding removal of specified risk materials (and other measures as are necessary), to requirements established by the Food Safety

and Inspection Service in January 2004. Allowing entry of Canadian beef from cattle slaughtered at any age is expected to influence the importation of both beef and cattle, as described in section 2.

Feeder cattle will not be required to go to designated feedlots, but once at a feedlot, they will not be allowed to be moved to different feedlots, onto range, or to cattle sales. Feeder lambs and goats will be required to be moved to designated feedlots. Designation will require maintenance of acquisition and deposition records and other criteria.

Canadian cattle, sheep, and goats imported other than for immediate slaughter will need to satisfy requirements that include identification with an official Canadian ear-tag and branding. Movement of feeder cattle, sheep, and goats of Canadian origin will be traceable through inspection and certification requirements.

We do not know the quantity of Canadian cervids that may be imported for immediate slaughter or for feeding because of the rule. Given that U.S. elk and deer inventories dwarf historic levels of "other mammal" imports from Canada (the trade data category that includes cervids), effects of allowing their importation from Canada to resume are expected to be minimal.

Changes to the Analysis

The analysis that was prepared for the proposed rule has been revised in light of market developments since the discovery of a BSE-infected cow of Canadian origin in the United States in December 2003, and in response to public comments received on the earlier analysis. In addition, baselines have been updated and elasticities revised, and the analyses of cattle and beef imports from Canada and U.S. beef exports have been modified in several ways.

Baselines and Elasticities. In the analysis for the proposed rule, baseline cattle and beef numbers were based on 2002 data. Baseline 2003 prices were used, to account for price increases after 2002. There have been major changes in the U.S. cattle and beef markets since publication of the proposed rule, most significantly, restrictions placed on imports of U.S. beef by major foreign markets due to the BSE discovery in Washington State in December 2003. U.S. beef exports jumped by 17 percent after the Alberta BSE discovery in May 2003, but for 2004 are expected to reach only 18 percent (beef and veal muscle cuts) and 30 percent (including beef variety meats) of 2002-2003 average exports.⁶

Despite the sharp reduction in exports, strong demand and limited supply dominate the U.S. domestic market.⁷ Through September 2004, beef and dairy cow slaughter were down nearly 15 and 17 percent, respectively, from a year earlier. Steer slaughter was down nearly 8 percent and heifer slaughter was down over 9 percent, despite record-high feeder cattle prices. Both reductions are largely a function of a national cattle inventory that has declined from 103.5 million head in 1996 to 94.9 million at the beginning of 2004. It is unlikely that enough heifers will calve in 2005 to offset the number of cows slaughtered in 2004, much less to begin an upturn in the cattle cycle.

For our baselines, we use forecasted annual quantities and prices that take into account these prevailing market conditions. Demand and supply elasticities are revised based on updated information provided by USDA Economic Research Service.

⁶ The beef and veal muscle cuts percentage is based on data and forecasts presented in USDA World Agricultural Supply and Demand Estimates, WASDE-416, November 12, 2004 (443 million pounds projected for 2004, compared to an average for 2002 and 2003 of 2,485 million pounds). The percentage including beef variety meats is from analysis conducted by APHIS' Centers for Epidemiology and Animal Health.

⁷ Statements about current and expected conditions for the cattle and beef industries are taken from recent ERS publications, in particular, recent Livestock, Dairy, and Poultry Outlook reports.

Cattle Imports from Canada. A number of public comments received on the proposed rule concerned the backlog of cattle in Canada that has grown because of the prohibition on imports by the United States since May 2003. In this analysis, we acknowledge the additional Canadian cattle available for importation by the United States by increasing assumed fed and feeder cattle import levels above their historical averages. We also assume that there will be increased fed cattle imports due to an expected displacement of fed cattle slaughter by cow slaughter in Canada, as explained in section 2.

Beef Imports from Canada. In the analysis for the proposed rule, lower and upper bounds of possible beef import levels were used, because we did not know the quantity of boneless beef that would enter the United States from Canada by permit. For the lower bound in that analysis, it was assumed that the amount of boneless beef that would be imported by permit would be equivalent to the amount imported in 2002; the only reestablished beef imports attributable to the rule would be beef with bone and whole/half carcasses. As an upper bound, it was assumed that no boneless beef would be imported by permit, that is, all reestablished beef imports would be attributable to the rule.

We now have a history of boneless beef imports from Canada by permit since September 2003, as well as data on imports from other countries. This information, together with expectations regarding the importation of beef derived from cow slaughter in Canada in place of beef derived from fed cattle slaughter, is used in approximating the possible change in beef imports from Canada attributable to the rule.

U.S. Beef Exports. The analysis for the proposed rule considered possible consequences for U.S. exports if other countries did not accept the United States' categorization of Canada as a BSE minimal-risk region, that is, the possibility of trade restrictions if these countries did not

agree that the proposed risk mitigations would provide a sufficient safeguard against BSE introduction into the United States. Impacts for U.S. beef exports were analyzed for two hypothetical levels of export loss: one-half of exports other than to Canada and Mexico and all exports other than to Canada and Mexico.

With the Washington BSE discovery, restricted foreign markets for U.S. beef have become a reality. Prior to the Washington State BSE discovery, exports of U.S. beef and ruminant products were earning \$7.5 billion annually. Immediately after the discovery, these export earnings fell by 64 percent. As of November 2004, the export decline had been reduced to 41 percent of levels before the BSE discovery.⁸

Removal of restrictions by some of our major Asian trading partners is on the horizon. The United States and Japan have held consultations and agreed that the trade in beef between the two countries should resume, given certain conditions and modalities.⁹ Taiwan has also agreed in principle to resume imports of U.S. beef and beef products.¹⁰

For countries prohibiting beef imports from the United States, the rule is not expected to have an immediate effect, but it could influence future decisions. We discuss in section 4 why the rule may or may not contribute to the lifting of foreign import bans on U.S. beef.

Economically Significant Rule. Executive Order 12866 sets forth requirements for rulemaking when a rule is deemed to be economically significant. APHIS has expanded the analysis in order to make it more compatible with Circular A-4. The changes include: estimation of benefits and costs over a time horizon (a five-year period, 2005-2009, has been chosen); calculation of the present value of annualized benefits and costs using real discount rates of 3 and

⁸ USDA Transcript, Release No. 0497.04, November 9, 2004.

⁹ "Joint Press Statement for the Resumption of Trade in Beef and Beef Products," by the Government of the United States and the Government of Japan, October 23, 2004.

¹⁰ USDA News Release No. 0468.04.

7 percent; and reporting of all monetized effects in 2001 dollars.

Organization of the Analysis

Five sections follow in this analysis of expected economic impacts of the rule. In section 2, the model used to estimate effects for cattle and beef, assumptions that underlie the analysis, and the baselines are explained. Section 3 presents expected impacts of the rule for cattle and beef. The combined welfare effects are discussed first, followed by a description of possible near-term price impacts, and impacts specific to cattle and beef. Sensitivity analyses are conducted of the welfare and near-term price effects, by reducing by one-half the assumed backlog and the assumed number of imported fed cattle displaced from Canadian slaughter. Other expected impacts of the rule are described in section 4. These include the results of a multi-sector analysis, costs of monitoring the movement of Canadian feeder cattle, effects for commodities other than cattle and beef, and possible effects for U.S. exports. Alternatives to the rule are evaluated in section 5. Section 6 addresses effects for small entities in a final regulatory flexibility analysis.

2. The Model, Assumptions and Baselines for Cattle and Beef

As described in the analysis for the proposed rule, cattle and beef imports comprise 99 percent of the value of commodities that will be allowed entry from Canada because of this rulemaking. Like that analysis, this one focuses on expected effects of reestablished imports from Canada of fed and feeder cattle and beef.

The Model

The same quantitative economic model is used as was applied in the analysis for the proposed rule.¹¹ The model is a net trade, non-spatial partial equilibrium welfare model. Net trade is defined as the absolute value of the difference between exports and imports. Individual country trade with the United States is not modeled. Non-spatial means that price and quantity effects resulting from geographic differences in market locations are not included. Therefore, price and quantity effects obtained from the model are assumed to be the average of effects across geographically separated markets. Partial price equilibrium means that the model results are based on maintaining commodity price equilibrium in a limited portion of an overall economy.

Economic sectors not explicitly included in the model are assumed to have a negligible influence on the model results. Welfare refers to benefits or losses to society, as measured by changes in consumers' willingness to pay for commodities beyond their actual price (a measure of consumer surplus) and changes in producers' revenue beyond their variable costs (a measure of returns to fixed investment known as producer surplus). The model and methodology are consistent with requirements of the Office of Management and Budget for benefit-cost analysis

¹¹ The model is described in Forsythe, Kenneth, "Baseline Analysis System Technical Documentation," APHIS VS CEAH, February 14, 1997.

as described in Circular A-4, "Regulatory Analysis," which provides guidance for agencies on the analysis of economically significant rulemakings as defined by Executive Order 12866.

This quantitative economic modeling approach is appropriate because the rule changes are specific to the US cattle and beef sectors, are focused in extent, and have only limited extensions into non-agricultural sectors of the economy. A disadvantage of the model is the lack of linkages between the cattle production and beef processing sectors. This disadvantage is addressed later in the analysis through the presentation of results from an agricultural multi-sector model which recognizes such linkages.

The model requires the specification of baseline prices, quantities supplied and demanded, and elasticities of supply and demand for the period 2005 through 2009. The baseline prices and quantities employed are found in Appendix A. These baseline projections were made under the assumption of a continuation of the restrictions on North American cattle and beef trade due to BSE which were in place during late 2004. For example, the projections assume that US markets do not accept live Canadian cattle and Asian markets remain closed to exports of US beef.

The price elasticities used in the analysis are provided by USDA Economic Research Service. For fed cattle, the supply elasticity is 0.61, and the demand elasticity is -0.76. For feeder cattle, the supply elasticity is 0.40, and the demand elasticity is -0.89. For comparison, we examine the near-term price effects for cattle using elasticities reduced by one-half, since it can reasonably be expected that sellers and buyers of cattle will be less responsive to price changes in the very short run. For beef, we use a supply elasticity of 0.84 and a demand elasticity of -0.80.

We estimate effects of additional supplies to the United States of fed cattle and feeder cattle, due to resumption of imports from Canada. The additional quantities of cattle, all things equal, will cause prices to fall. The model indicates the expected price decline, and the increase in quantity demanded and decrease in domestic production/supply that will occur in response to the fall in price. Summing welfare gains for consumers/buyers and losses for producers/suppliers (changes in consumer and producer surplus) yields estimated net benefits for the United States.¹² We expect a small decline in beef imports with the rule, due to the importation of beef from Canadian cow slaughter in place of beef from fed cattle slaughter, as explained below.

We consider impacts over five years, 2005-2009. Baseline price ranges and quantities used in the analysis for cattle and beef are shown in Appendix A. The closing of the border to live ruminant imports from Canada in May 2003 has caused an additional quantity of cattle to accumulate in Canada above the normal national inventory.¹³ We term this additional quantity the backlog. It is expected that the backlog of cattle less than 30 months or some portion will be shipped to the United States once the rule is in effect, perhaps within the first three to six months.

After the backlog of cattle has been imported, imports of cattle under 30 months of age from Canada are expected to continue at historic levels elevated by the importation of fed cattle displaced from Canadian slaughter by the slaughter of cows. We expect the largest impact of the rule to occur soon after its effective date. In order to assess these very near-term price impacts,

¹² Discussion of effects in terms of consumers/buyers and producers/suppliers abstracts from the broader expected impacts of the rule. Benefits enjoyed and costs borne will extend beyond the entities involved in initial transactions, as indicated by the multi-sector analysis referred to in section 4. For example, benefits for buyers due to lower prices for cattle will at least partly pass through to entities further down the marketing chain.

¹³ The significance of the backlog is underscored by the Government of Canada's recent initiation of a Fed Cattle Set-Aside Program to "help manage the current oversupply of animals as a result of the continued closure of the U.S. border" (Agriculture and Agri-Food Canada, Industry Notice, October 10, 2004).

we estimate effects of the rule for the first and second quarters of 2005, in addition to the five-year analysis of welfare effects.

Cattle Imports from Canada

Appendix B shows the number of cattle we expect to enter from Canada. There are three components to these quantities, as described in Appendix C: the backlog, the quantity that would be imported normally, and additional fed cattle that would be expected to be displaced from slaughter in Canada by increased cow slaughter for beef exports to the United States.

Calculation of the size of the backlog, shown in Appendix D, is based on the change in Canada's cattle inventory from July 2003 to July 2004. The backlog of fed cattle under 30 months may total about 394,500 head. For feeder cattle, the backlog may be about 204,000 head. The backlog of cattle over 30 months (not eligible for importation under the rule) may number about 462,500 head.

The quantity of fed and feeder cattle that would enter normally is based on average imports for 2001 and 2002. These numbers are shown in Appendix E, and for the year include about 652,400 head of fed cattle and about 311,400 head of feeder cattle.

The third component of expected cattle imports, an additional supply of fed cattle, derives from another part of the rule, namely, allowance for beef imported from Canada to come from cattle slaughtered at any age. We expect a significant increase in cow slaughter in Canada, for the export of processing beef to the United States. Canadian processing beef will find a ready market in the United States, where cow slaughter has declined in both the beef and dairy sectors. We discuss these expected effects here in greater detail.

Our assumptions regarding (i) the shift in Canada from slaughter of fed cattle under 30 months of age to slaughter of cattle (principally cows) over 30 months of age, for the export of

processing beef to the United States, and (ii) the shipment to the United States of the fed cattle under 30 months of age not slaughtered in Canada, are based on relative prices and margins in the two countries for fed cattle, cows, fed beef, and processing beef. As of mid-November 2004, a Canadian packer could buy a cow for about US\$17 per cwt and sell the processing-grade beef for about US\$123 per cwt. He also could buy a fed steer or heifer at about US\$67 per cwt and sell the beef for about US\$132 per cwt. In the United States, the cow would cost a packer about \$55 per cwt and the beef would sell for about \$125 per cwt; a fed steer or heifer would cost about \$85 per cwt and the beef would sell for about \$135 per cwt.

Although differences in weights and dressing percentages do not permit the direct comparison of live animals to dressed meat, the difference between the relative purchase prices to sales prices indicate that the margin in buying cows and selling processing beef is much larger for a Canadian packer than it is for a U.S. packer. Canadian packers are prevented from taking greater advantage of this large margin by Canada's relatively small market for cow beef. Canadian production of processing beef has already displaced much of Canada's imported product. Without a larger demand, increased production would cause the Canadian price of processing beef to decline sharply.

The United States is already providing Canada with additional demand for beef from fed cattle, through the importation of boneless beef under permit from cattle slaughtered at less than 30 months of age. The United States, in a sense, is currently importing Canada's surplus production of fed beef. Allowing the United States to import Canadian beef from cattle slaughtered at more than 30 months of age would enable Canada to produce and sell much larger quantities of processing beef without fearing the significant price collapse that would likely occur if the entire additional product were only for the Canadian market.

That is not to say that the price of processing beef or cow prices in the United States would not decline from their current levels due to the supply from Canada, but we would not expect a sharp decline. Two facts concerning the U.S. supply of processing beef underlie this reasoning. First, U.S. cow slaughter is forecast to decline in 2005, as producers begin to rebuild herds that have been characterized by diminishing cow inventories for several years. Second, cow retention for herd rebuilding is also expected to take place in Australia and New Zealand, major foreign sources of processing beef for the United States. Their beef exports are forecast to remain largely unchanged in 2005. As long as principal Asian markets continue to prohibit entry of U.S. beef, any increase in imports of beef from Australia and New Zealand by these markets may limit the supply of beef from Australia and New Zealand to the United States.

With the rule, entry of Canadian steers and heifers is expected to result in steer and heifer prices in the two countries becoming more similar. For example, in 2002, fed steer prices in Alberta averaged about US\$63 per cwt, while in the United States, the Nebraska Direct Choice steer price averaged about \$67 per cwt. Given the difference in mid-November 2004 prices for fed cattle, \$67 per cwt in Canada and \$85 per cwt in the United States, shipment of fed cattle to the United States will be an attractive alternative for Canadian producers, at least until Canadian prices rise to the level of U.S. prices (adjusted for grade differentials and minus transportation and transaction costs).

Prices for slaughter cows in the two countries are expected to continue to differ because Canadian cattle more than 30 months of age will not be allowed entry by the rule, despite a ready market for them at slaughter facilities located in the northern United States. Thus, in the absence of trade in those cattle, the backlog of cattle over 30 months of age will remain until increased cow slaughter in Canada reduces their inventory. We would expect the price of cows in Canada

to increase as slaughter increases in response to opportunities to export beef from cattle more than 30 months of age to the United States. However, the margin earned from slaughtering cows in Canada and exporting the processing beef to the United States is likely to remain favorable (though decreasingly so as Canada's backlog of cattle more than 30 months of age is reduced).

It is assumed that the Canadian slaughter sector is operating at full capacity.¹⁴ Key to assumptions underlying this analysis is the willingness of Canadian slaughter facilities to add cow slaughter shifts or days to their operations at the expense of steer and heifer slaughter. We believe they would want to do so, given the price differentials in Canada and the United States and the opportunity for Canadian beef exports to the United States from cattle slaughtered at more than 30 months of age. With the rule, beef imported from Canada would no longer be required to come from a slaughter facility that either slaughters only cattle less than 30 months of age or complies with an approved segregation process, which may permit increased flexibility in scheduling cow slaughter.

In 2005, APHIS expects this shift by Canada to exports of processing beef and additional fed cattle to the United States to take place throughout the year, not during one or two quarters as assumed for the backlog of steers and heifers under 30 months of age. Beyond 2005, additions to Canadian slaughter capacity are expected to allow increased slaughter of cattle of all ages. Canada has been able to increase its slaughter numbers during the past year, but the opening of new plants and major expansion of current processing facilities to accommodate increased cow slaughter will likely take some years.¹⁵ The lack of excess slaughter capacity in Canada and the

¹⁴ See, for example, Jim Cote, "US Cattle Futures Look to Supply for Direction." FutureSource, LLC (Dow Jones Newswires), December 10, 2004.

¹⁵ In the first six months of 2004, Canada's domestic slaughter rose 17.4 percent, as beef imports fell to less than one-third of pre-BSE levels (Statistics Canada, "The Daily," August 19, 2004). Notwithstanding this short-term increase, the Government of Canada is embarking on a strategy to expand the country's slaughter capacity in recognition of the industry's constraints (Agriculture and Agri-Food Canada, "Government Announces Strategy to Reposition Canada's Livestock Industry," News Release, September 10, 2004). The proposed increase in capacity

described price differentials are the basis for the assumed shift to increased cow slaughter in Canada for the production of processing beef for export to the United States, and the assumed additional imports of Canadian fed cattle.

In 2005, the maximum number of imported fed cattle displaced from Canadian slaughter may equal the backlog of cattle over 30 months (assumed to be slaughtered for the export of processing beef to the United States), about 460,000 head. For years 2006-2009, we assume the number of fed cattle displaced from slaughter in Canada and exported to the United States to decline, as Canada's slaughter capacity increases and Canada's cow prices trend upward: 260,000 head in 2006, 160,000 head in 2007, and 60,000 head in both 2008 and 2009 (Appendix B). However, all things equal, as long as live cattle imports from Canada are limited to animals less than 30 months and the U.S. demand for processing beef is high, beef imports from Canadian cow slaughter may be favored.

Uncertainty surrounds both the assumed backlog quantities and the quantity of fed cattle expected to be displaced by cow slaughter in Canada and exported to the United States. We acknowledge these uncertainties by also conducting a sensitivity analysis using one-half of the assumed backlog and one-half of the assumed number of displaced fed cattle.

Beef Imports from Canada

Current boneless beef imports from Canada under permit represent a large share of historic levels. Before the BSE discovery in Alberta, Canada's share of U.S. beef imports was about 41 percent (90 percent of fresh/chilled beef imports and 4 percent of frozen beef imports). Since the resumption of imports under permit, Canada has regained a 32 percent share (fresh/chilled beef, 85 percent; frozen, 3 percent) of U.S. beef imports (Appendix F). In

will not be available for the backlog. The near-term capacity constraints are also noted in Canadian Cattlemen's Association, "A Strategic Plan for the Canadian Beef Cattle Industry," August 20, 2004 (Updated September 8, 2004).

other words, most of Canada's historic beef exports are currently taking place, so the effect of the rule for beef is expected to be much smaller than the effect for cattle. Canadian beef entering the United States by permit is included in the baseline for the analysis.

As described, we expect Canadian cows to be slaughtered in place of fed cattle for the export of beef to the United States. A cow that is slaughtered produces less meat than a fed steer or heifer due to a lighter weight and a lower dressing percentage. Recent statistics from Canada indicate an average difference in beef produced from one steer/heifer and one cow of 150 pounds.¹⁶ In 2005, assuming Canada is fully utilizing all available slaughter capacity, the decrease in beef production would total about 69 million pounds if the backlog of about 460,000 cattle over 30 months of age is slaughtered in place of steers and heifers. To take into consideration possible declines in Canada's domestic consumption of beef as beef prices rise slightly relative to other meats, and therefore movement of beef from the domestic to export markets, we reduce the decline of 69 million pounds by one-third, to 46 million pounds.

The forecast for Canada's beef exports worldwide in 2005 is 570,000 metric tons.¹⁷ U.S. imports of beef from Canada are forecast to equal about 86 percent of Canada's total beef exports, or about 490,200 metric tons. The 490,200 metric tons is equivalent to about 1,081 million pounds. In other words, Canada's beef exports to the United States, compared to what would have been exported without this rule, can be expected to decline by 4.3 percent because of the replacement of steer/heifer slaughter by cow slaughter in Canada. The import quantities and assumed reductions, 2005-2009, are shown in Appendix G.

Processing-grade beef is not perfectly substitutable for fed beef. The two commodities compete in different but closely related markets. This distinction is not included in the analysis

¹⁶ Based on beef yields of 882 pounds, the weighted average for steers and heifers, and 666 pounds for cows, as reported by USDA ERS, citing data from Agriculture and Agri-Food Canada.

¹⁷ USDA FAS, PSD Official Statistics.

since the model is based on aggregate beef price ranges and elasticities. Increased supplies of processing beef are expected to compete with fed beef in the same fashion as other close substitutes. Thus, allowing imports of beef from cattle slaughtered at over 30 months of age, together with fed cattle imports augmented by the cattle displaced from Canadian slaughter, is expected to result in lower prices for U.S. steers and heifers.

As with the assumed backlog and displaced fed cattle imports, there is uncertainty as to the amount of beef from Canadian cow slaughter that will be imported by the United States. Accordingly, we include in the sensitivity analysis a reduction by one-half of the assumed change in beef imports from Canada. In 2005, for example, this reduced amount would represent a decrease in beef imports from Canada of 2.1 percent from what would have been imported without the rule.

3. Welfare and Near-term Price Effects of the Rule for Cattle and Beef

In this section we report the results of the analysis for cattle and beef. Combined welfare effects for both sectors are presented first, with a sensitivity analysis of the effects of assuming smaller cattle import quantities. Near-term price impacts, due to the entry of backlog cattle over a period of three or six months, are then examined, followed by separate discussions for cattle and beef.

Combined Welfare Effects

Welfare effects of the rule for cattle and beef are summarized in Table 1. Present and annualized values of welfare gains and losses over the five-year period 2005-2009, are determined using 3 percent and 7 percent discount rates. The present and annualized values are given in both 2005 and 2001 dollars. It is noted that the annualized values mask the larger impacts expected during 2005 compared to subsequent years.

Present values in 2005 dollars when using a 3 percent discount rate, for example, may range from \$2.86 billion to \$3.11 billion for consumer gains, and from \$2.79 billion to \$3.03 billion for producer losses, for a net benefit of \$71.7 million to \$77.5 million. Taking the midpoints of these ranges, consumer gains would be \$2.98 billion, producer losses would be \$2.91 billion, and net benefits, \$74.6 million. Midpoints of estimated annualized values over the five years, in 2005 dollars when using a 3 percent discount rate, show consumer gains of \$651 million, producer losses of \$635 million, and net benefits of \$16 million. When using the 7 percent discount rate, 2005 dollars, the midpoints of the present value ranges are: consumer gains, \$2.59 billion; producer losses, \$2.53 billion; and net benefits, \$66.3 million. Annualized midpoint values at 7 percent are: consumer gains, \$632 million; producer losses, \$616 million; and net benefits, \$16 million.

Table 1. Ranges and midpoints of present and annualized value estimations of effects of the rule for fed cattle, feeder cattle, and beef, discounted at 3 percent and 7 percent, in 2005 and 2001 dollars, 2005-2009

<u>Present Value</u>	<u>Discount Rate</u> (Percent)	<u>Low, High, and Midpoint</u>	<u>Changes in Welfare</u>		
			<u>Consumer</u>	<u>Producer</u>	<u>Net</u>
(Thousand Dollars)					
2005 Dollars	3	L	\$2,858,506	-\$2,786,798	\$71,709
	3	H	\$3,105,669	-\$3,028,125	\$77,544
	3	M	\$2,982,088	-\$2,907,462	\$74,626
	7	L	\$2,487,128	-\$2,423,321	\$63,807
	7	H	\$2,697,274	-\$2,628,383	\$68,891
	7	M	\$2,592,201	-\$2,525,852	\$66,349
2001 Dollars	3	L	\$2,694,142	-\$2,626,557	\$67,585
	3	H	\$2,927,093	-\$2,854,008	\$73,085
	3	M	\$2,810,618	-\$2,740,283	\$70,335
	7	L	\$2,344,119	-\$2,283,980	\$60,138
	7	H	\$2,542,181	-\$2,477,251	\$64,929
	7	M	\$2,443,150	-\$2,380,616	\$62,534
<u>Annualized Value</u>					
2005 Dollars	3	L	\$624,168	-\$608,510	\$15,658
	3	H	\$678,137	-\$661,205	\$16,932
	3	M	\$651,153	-\$634,858	\$16,295
	7	L	\$606,587	-\$591,026	\$15,562
	7	H	\$657,840	-\$641,038	\$16,802
	7	M	\$632,214	-\$616,032	\$16,182
2001 Dollars	3	L	\$588,278	-\$573,521	\$14,758
	3	H	\$639,144	-\$623,186	\$15,958
	3	M	\$613,711	-\$598,353	\$15,358
	7	L	\$571,709	-\$557,042	\$14,667
	7	H	\$620,014	-\$604,179	\$15,836
	7	M	\$595,861	-\$580,610	\$15,251

Note: The present and annualized values are taken from Appendix H, based on assumed import of the backlog, import of the fed cattle displaced from slaughter in Canada by increased cow slaughter for the export of processing beef to the United States, and beef imports from cows slaughtered in place of fed cattle.

A comparison of year-by-year effects of the rule over the period of analysis indicates, as expected, that the largest impacts would occur in 2005, with the assumed importation of the

backlog of cattle under 30 months of age and the largest assumed importation of fed cattle displaced from slaughter in Canada by the expected increase in cow slaughter. Estimated net benefits in 2005 for fed cattle may range from \$25.0 million to \$26.9 million, and for feeder cattle, from \$10.4 million to \$11.0 million (Appendixes J). In each successive year the expected net benefits become smaller, such that by 2009 they may range for fed cattle from \$3.8 million to \$4.3 million, and for feeder cattle, from \$4.3 million to \$4.8 million.

Table 2 shows the results of the sensitivity analysis, assuming importation of one-half of the backlog, one-half of the fed cattle expected to be displaced from slaughter in Canada, and one-half of the expected replacement of beef imports derived from fed cattle by beef imports derived from cows. The present value of the net benefit for cattle and beef in this case is estimated to range in 2005 dollars between \$48.9 million and \$56.1 million, depending on the discount rate used. Over the five-year period, the annualized value of the net benefit in 2005 dollars, depending on the discount rate, may range between \$11.9 million and \$12.3 million, that is, about three-fourths of the expected annualized net benefit with the rule.

In this scenario, the impact in 2005, in particular, would be smaller because of the fewer cattle imported. For fed cattle, the annual price declines may range from an average of 2.3 percent in 2005, to 1.2 percent in 2009. For feeder cattle, the price declines may average 0.7 percent over the five-year period. Estimated net benefits in 2005 for fed cattle may range from \$12.9 million to \$13.9 million, and for feeder cattle, from \$8.0 million to \$8.5 million. In each successive year the net benefits are expected to become smaller, such that by 2009 they may range for fed cattle from \$3.5 million to \$3.9 million, and for feeder cattle, from \$4.3 million to \$4.8 million.

Table 2. Sensitivity analysis based on reduced import quantities: ranges and midpoints of present and annualized value estimations of effects of the rule for fed cattle, feeder cattle, and beef, discounted at 3 percent and 7 percent, in 2005 and 2001 dollars, 2005-2009

<u>Present Value</u>	<u>Discount Rate</u> (Percent)	<u>Low, High, and Midpoint</u>	<u>Changes in Welfare</u>		
			<u>Consumer</u>	<u>Producer</u>	<u>Net</u>
(Thousand Dollars)					
2005 Dollars	3	L	\$2,463,204	-\$2,409,313	\$53,891
	3	H	\$2,679,443	-\$2,621,047	\$58,396
	3	M	\$2,571,323	-\$2,515,180	\$56,144
	7	L	\$2,120,243	-\$2,073,216	\$47,027
	7	H	\$2,301,987	-\$2,251,120	\$50,867
	7	M	\$2,211,115	-\$2,162,168	\$48,947
2001 Dollars	3	L	\$2,321,569	-\$2,270,777	\$50,792
	3	H	\$2,525,375	-\$2,470,336	\$55,038
	3	M	\$2,423,472	-\$2,370,557	\$52,915
	7	L	\$1,998,329	-\$1,954,006	\$44,323
	7	H	\$2,169,623	-\$2,121,681	\$47,942
	7	M	\$2,083,976	-\$2,037,844	\$46,132
<u>Annualized Value</u>					
2005 Dollars	3	L	\$537,852	-\$526,084	\$11,767
	3	H	\$585,069	-\$572,317	\$12,751
	3	M	\$561,460	-\$549,201	\$12,259
	7	L	\$517,107	-\$505,638	\$11,469
	7	H	\$561,433	-\$549,027	\$12,406
	7	M	\$539,270	-\$527,333	\$11,938
2001 Dollars	3	L	\$506,925	-\$495,835	\$11,091
	3	H	\$551,427	-\$539,409	\$12,018
	3	M	\$529,176	-\$517,622	\$11,554
	7	L	\$487,374	-\$476,564	\$10,810
	7	H	\$529,151	-\$517,458	\$11,693
	7	M	\$508,262	-\$497,011	\$11,251

Note: The present and annualized values are taken from Appendix I, based on one-half the assumed backlog, one-half the assumed fed cattle displaced from slaughter in Canada by increased cow slaughter for the export of processing beef to the United States, and one-half the assumed beef imports from cows slaughtered in place of fed cattle.

The estimated percentage decrease in the price of fed cattle, if one-half of the backlog and one-half of the additional fed cattle expected to be displaced from slaughter in Canada were imported, would be about 1 percent less than when we assume importation of the full backlog and full quantity of displaced fed cattle (2.3 percent decrease, compared to a 3.2

percent decrease). For feeder cattle, the difference in the impact is smaller in absolute terms, but larger in relative terms (0.6 percent decrease, compared to a 1.3 percent decrease). In both cases, the impacts are expected to diminish over the five-year period.

Near-term Price Effects

The largest price impact can be expected during the first quarter or two quarters that the rule is in effect, when the backlog is assumed to enter the United States. Possible price effects are shown in Table 3, using baselines for the first two quarters of 2005.

Table 3. Estimated near-term price declines for fed cattle and feeder cattle due to the resumption of cattle imports from Canada

<u>Category of Cattle</u>	<u>Period</u>	<u>Price Elasticities</u>	<u>Decrease in Price</u> (Dollars per cwt, live weight)	<u>Percentage Decrease in Price</u>
Fed cattle	1 st Q, 2005	S 0.61, d -0.76	\$4.42 - \$4.75	5.4%
	1 st Q, 2005	S 0.30, d -0.38	\$5.64 - \$6.05	6.9%
	1 st and 2 nd Q, 2005	S 0.61, d -0.76	\$3.10 - \$3.40	3.8%
	1 st and 2 nd Q, 2005	S 0.30, d -0.38	\$3.95 - \$4.33	4.8%
	1 st Q, 2005	S 0.40, d -0.89	\$3.01 - \$3.21	3.3%
	1 st Q, 2005	S 0.20, d -0.44	\$4.02 - \$4.28	4.4%
Feeder cattle	1 st and 2 nd Q, 2005	S 0.40, d -0.89	\$1.72 - \$1.85	1.9%
	1 st and 2 nd Q, 2005	S 0.20, d -0.44	\$2.32 - \$2.49	2.5%

Note: Based on supply, demand, and price data shown in Appendix A, and import quantities shown in Appendix B, assuming the full backlog of Canadian cattle is imported. The periods, based on the first quarter or the first two quarters of 2005, are the times during which we assume the backlog of Canadian cattle is imported into the United States. Price and percentage decreases are taken from Appendix J.

As expected, price impacts are larger when the backlog is assumed to enter in one quarter rather than two quarters, and are larger for fed cattle than for feeder cattle, given the larger number of fed cattle expected to be imported. For example, for fed cattle the decrease in price when the backlog is assumed to enter entirely within one quarter is estimated to be 5.4 percent, assuming a price elasticity of supply of 0.61 and a price elasticity of demand of -0.76.

When the backlog of fed cattle is assumed to enter over two quarters using the same price elasticities, the decline in price is estimated to be 3.8 percent. Entry of the backlog of feeder cattle over the two quarters could result in price declines of 1.9 percent, for the same elasticities, compared to a possible price drop of 3.3 percent when they enter entirely within one quarter.

The less elastic the price elasticities (the less responsive sellers and buyers are to price changes), the larger the expected percentage changes in price. When the supply and demand elasticities are halved (supply elasticity of 0.30, and demand elasticity of -0.38), for example, and fed cattle are assumed to enter within two quarters, the decrease in price could be 4.8 percent, compared to a decrease of 3.8 percent when a supply elasticity of 0.61 and demand elasticity of -0.76 are used.

Table 4 shows the near-term price effects that may result if only one-half of the assumed backlog and one-half of the assumed number of displaced fed cattle were imported. The price impacts in this sensitivity analysis are found to be smaller overall, with the smaller elasticities again yielding larger price decreases. For example, the percentage decrease in price for fed cattle entering over two quarters is estimated to be 2.5 percent for a supply elasticity of 0.61 and a demand elasticity of -0.76 (compared to a 3.8 percent price decline when the full backlog and number of displaced fed cattle are imported). If the supply elasticity were 0.30 and the demand elasticity were -0.38, the price decline is estimated to be 3.2 percent (compared to 4.8 percent for the full cattle import numbers). Similarly, smaller percentage price declines are observed for feeder cattle when in the sensitivity analysis the backlog and the number of imported fed cattle displaced from Canadian slaughter are halved.

Table 4. Sensitivity analysis based on reduced import quantities: estimated near-term price declines for fed cattle and feeder cattle due to the resumption of cattle imports from Canada

<u>Category of Cattle</u>	<u>Period</u>	<u>Price Elasticities</u>	<u>Decrease in Price</u> (Dollars per cwt, live weight)	<u>Percentage Decrease in Price</u>
Fed cattle	1 st Q, 2005	S 0.61, d -0.76	\$2.63 - \$2.83	3.2%
	1 st Q, 2005	S 0.30, d -0.38	\$3.36 - \$3.61	4.1%
	1 st and 2 nd Q, 2005	S 0.61, d -0.76	\$2.04 - \$2.23	2.5%
	1 st and 2 nd Q, 2005	S 0.30, d -0.38	\$2.60 - \$2.85	3.2%
	Q, 2005			
Feeder cattle	1 st Q, 2005	S 0.40, d -0.89	\$1.28 - \$1.37	1.4%
	1 st Q, 2005	S 0.20, d -0.44	\$1.71 - \$1.83	1.9%
	1 st and 2 nd Q, 2005	S 0.40, d -0.89	\$0.78 - \$0.84	0.9%
	1 st and 2 nd Q, 2005	S 0.20, d -0.44	\$1.05 - \$1.13	1.1%
	Q, 2005			

Note: Based on supply, demand, and price data shown in Appendix A, and import quantities shown in Appendix B. The periods, based on the first quarter or the first two quarters of 2005, are the times during which we assume the backlog of Canadian cattle will be imported into the United States. Price and percentage decreases are taken from Appendix K. This table is based on one-half the assumed backlog, one-half the assumed number of fed cattle displaced from slaughter in Canada by increased cow slaughter for the export of processing beef to the United States, and one-half the assumed beef imports from cows slaughtered in place of fed cattle.

Cattle

Expected impacts of the rule for cattle (and effects of the reduced imports assumed in the sensitivity analysis), for the first two quarters of 2005 and years 2005-2009, are shown in Appendixes J and K, with the discounted welfare impacts presented in Appendixes L and M (fed cattle), and Appendixes N and O (feeder cattle). The largest effects are expected to occur in 2005, when the backlog would be imported and the Canadian displacement of fed cattle slaughter by cow slaughter would be largest. For fed cattle, the percentage price declines may

range from an 3.2 percent in 2005, to 1.3 percent in 2009. For feeder cattle, the percentage price declines may range from 1.3 percent in 2005, to 0.6 percent in 2009.

Beef

Expected effects of the rule attributable to the change in beef imports from Canada (and effects of the reduced imports derived from cow slaughter assumed in the sensitivity analysis) are shown in Appendixes P and Q, with the discounted welfare measures shown in Appendixes R and S. They are much smaller than the effects for cattle. For example, the expected 2005 net welfare loss (because of the decline in imports due to cow slaughter replacing fed cattle slaughter) in 2005 dollars is estimated to range between \$94,000 and \$98,000. Average percentage increases in price may range from 0.09 percent in 2005, to 0.01 percent in 2009, suggesting nearly negligible impacts. If the beef-equivalent of the fed cattle and feeder cattle imported from Canada is considered, the supply of beef in the United States increases and the price of beef decreases by 1-2 percent from 2005 baseline levels. Smaller decreases from baseline projections would occur after 2005 because the volume of imported animals declines.

Effects will be even smaller for U.S. producers than these percentages indicate, given that nearly all U.S. beef imports from countries other than Canada is processing beef. Demand for imported processing beef has increased dramatically as ground beef sales continue at a robust pace. At the same time, U.S. production of processing beef has fallen to record lows because of the cyclical decline in cow slaughter.

4. Other Impacts of the Rule

In this section we consider other effects of the rule besides those estimated for cattle and beef, including: the results of an agricultural multi-sector analysis; costs that may be incurred in monitoring the movement of imported Canadian feeder ruminants; effects for ruminant products other than cattle and beef; and possible effects of the rule for U.S. exports.

Multi-sector Analysis

Some comments received on the analysis for the proposed rule emphasized the integrated structure of the cattle and beef processing industries, and noted potential impacts of the rule on other sectors of the economy. APHIS agrees that a multi-sector analysis of effects of the rule may capture industry interactions that might not otherwise be considered. We therefore include results from a simulation of the rule's effects on revenue earnings for the cattle and beef processing industries when they are combined with related industries in a single, multi-sector model. The analysis, undertaken by APHIS' Centers for Epidemiology and Animal Health, was prepared using a partial equilibrium model that includes grain production, live animal production, and meat processing.¹⁸ International as well as domestic sales are incorporated into the model.

While the major vertically linked marketing channels are included in this model, effects of the rule further downstream in the economy are not modeled. For example, economic benefits to surrounding communities of increased employment in slaughter plants receiving greater supplies of cattle due to reopening of the Canadian border are not captured by the model, nor are

¹⁸ Three examples of studies based on this type of model are: Paarlberg, P.L. "Agricultural Export Subsidies and Intermediate Goods Trade," *American Journal of Agricultural Economics*. 77, 1(1995): 119 - 128. Paarlberg, P.L., J.G. Lee, and A.H. Seitzinger. "Potential Revenue Impact of an Outbreak of Foot-and-Mouth Disease in the United States," *Journal of the American Veterinary Medical Association*. 220,7(April 1, 2002): 988-992. Sanyal, K.K. and R.W. Jones. "The Theory of Trade in Middle Products," *American Economic Review*. 72(1982): 16 - 31.

similar economic losses resulting from reduced spending in communities by cattle producers due to reductions in their returns. These impacts are believed to be very small on a national basis but may show some geographic concentration.

Simulated one-year impacts are calibrated to forecasted 2005 data found in various USDA reports such as Livestock, Dairy, and Poultry Outlook. In addition to beef, the model shows effects for milk, pork, lamb meat, poultry and egg production, and therefore takes into account substitution among livestock products in response to relative price changes. Substitution effects vary because of differences in supply response. Poultry and egg producers are able to fully respond to price changes within a one-year time frame, but swine producers have a more limited ability to respond. Cattle and sheep producers have almost no ability to adjust livestock numbers in response to price changes within this time period (but can change the weights to which their animals are fed).

With respect to grains, five crops—wheat, coarse grains, soybeans, rice, and forage—are included in the model. Byproducts such as soybean meal are important feed ingredients for livestock.

Most simply, the model maps the interactions through which feeds are used to produce cattle, swine, sheep, and poultry, from which are derived beef, milk, pork, lamb meat, poultry meat, and eggs. Effects of changes in the supply or demand for the inputs or products of a particular sector can then be traced to the other sectors.

The multi-sector analysis simulates percentage changes in prices and gross revenues (price multiplied by the quantity sold) using the assumed 2005 range of imported Canadian cattle (roughly 1.5 million to 2 million head, fed and feeder cattle combined). The results of the analysis show for the combined livestock, feed, and grain sectors, a possible decline in gross

revenues of 1.4 percent to 1.7 percent. For the beef and cattle sectors, the gross revenue declines may range from 1.3 percent to 1.6 percent, and from 3.9 percent to 4.8 percent, respectively.

With respect to the change in the price of cattle in 2005, the multi-sector analysis indicates a possible decline of between 3.3 percent and 4.1 percent, compared to 2005 price declines estimated in the single-sector analyses of between 0.6 percent and 1.3 percent for feeder cattle, and between 2.3 percent and 3.2 percent for fed cattle. To the extent that sector interactions result in expanded effects as indicated by these relative price declines, welfare gains and losses will be larger than are indicated in Table 1. The multi-sector model simulates price and revenue changes, but does not yield measures of welfare change. However, this model does indicate a decline in consumer expenditures by about 1 percent, a finding that supports the estimated consumer welfare gains attributable to the rule.

The multi-sector analysis also examines possible impacts if beef consumption in the United States were to decline by 2 percent because of consumers' perception of increased risk of BSE with the rule. Compared to the assumption of no consumer response, this scenario shows that there would be a decline in beef and cattle prices by an additional 0.2 percent to 0.4 percent, causing gross revenues for the beef and cattle sectors to fall by an additional 0.2 percent to 0.5 percent.

A third scenario considered in the multi-sector analysis is partial restoration of beef exports to Japan, such that U.S. beef exports in 2005 would double, from an expected 0.3 million metric tons to 0.6 million metric tons. In this instance, gross revenue for the cattle sector (assuming 1.5 million head of Canadian cattle are imported) could decline by 1.7 percent, compared to a possible decrease of 3.9 percent assuming no change in U.S. beef exports. For the beef sector, gross revenue losses of 1.3 percent may become gains of 2.2 percent because of the

exports to Japan. For both sectors, increased U.S. exports could moderate by at least one-half the price declines due to resumption of cattle imports from Canada.

Monitoring the Movement of Feeder Cattle

Movement within the United States of feeder cattle (and feeder lambs and goats) imported from a BSE minimal-risk region such as Canada—from the U.S. port of entry to a feedlot and from the feedlot to slaughter—will require that certain inspection and record keeping safeguards be satisfied. The increased cost of these requirements is considered a cost to this rulemaking. These include certification of each animal's identification (by eartag and branding), age, and feeding history. The feeder cattle will be listed on the APHIS Form VS 17-130 that accompanies the animals from the port of entry and on the APHIS Form VS 1-27 that accompanies the animals to slaughter. We discuss here the inspection and record keeping costs expected to be incurred because of these record keeping requirements.¹⁹

Costs can be approximated by considering the time Federal or State officials or their designees would spend performing the inspections and certifications. We estimate the direct salary cost per animal, based on a simplified example developed by APHIS Veterinary Services. We assume 45 feeder cattle per truck load, and an average of 2 person-hours per inspection. Inspections will take more or less time, depending upon whether or not the cattle are removed from the truck and reloaded. In general, we assume that Canadian cattle would not be removed from trucks for inspection.

Each truck load of cattle will be inspected and certified four times: when entering the United States, when arriving at the feedlot, when leaving the feedlot, and when arriving at the slaughtering facility. The direct salary cost, based on an assumed veterinary officer's annual

¹⁹ The cost approximation is solely based on the cost of inspection and certification. It does not take into account other business expenses that may be incurred because of the requirements or costs associated with possible movement delays.

salary and work time of \$60,000 (excluding benefits) and 2,000 hours, would be approximately \$5.34 per animal.²⁰ In addition, there will be the cost of personnel benefits, administrative support costs, agency overhead, and departmental charges, which may bring the total cost per animal to about \$10. Given the number of feeder cattle that may enter because of the rule, the overall cost in 2005 could be between \$4.1 million and \$5.2 million.

Commodities other than Cattle and Beef

Expected impacts for other commodities affected by the rule are described below. For none of the commodities would reestablishment of imports from Canada have a large effect for U.S. businesses or consumers.

Sheep and goats. Sheep are raised for both meat (lamb or mutton) and wool. The U.S. sheep and wool industries have seen significant change since the mid-1970s, marked by smaller inventories, declining production, shrinking revenues, and fewer operations. Historically, lamb and mutton have been viewed as byproducts of wool production, even though wool receipts have accounted for only about one-quarter of revenue. As wool revenues have declined, producers have turned their attention to lamb and mutton production.

Sheep operations range in size from small flocks to large holdings. Two types of enterprises exist: stock-sheep production and lamb feeding. Stock-sheep producers manage grazing flocks on pasture and range forage, often on arid western lands with few alternative uses. Stock-sheep producers sell lambs that are either slaughtered or placed in feedlots. Feeder lambs are raised on forage until they are around 60-80 pounds, then placed in feedlots to be fattened and finished for slaughter.

²⁰ \$60,000 per year divided by 2,000 hours per year equals \$30 per hour, or \$0.50 per minute. 2 hours, or 120 minutes, per inspection per truck load divided by 45 head of cattle per truck load equals 2.67 minutes per inspection per head of cattle. 2.67 minutes per inspection per head of cattle multiplied by 4 inspections equals 10.68 minutes per head of cattle. 10.68 minutes per head of cattle times \$0.50 per minute equals \$5.34 per head of cattle.

Lamb and mutton production is highly correlated with wool returns. Because meat and wool are joint products, producers keep lambs longer when wool prices are high (to get additional shearing of wool), which means fewer animals are sent to slaughter and lamb and mutton production falls. On the other hand, low wool prices tend to cause producers to liquidate their flocks, increasing the supply of lamb and mutton to the market.

Of 139,162 sheep imported by the United States in 2002 (prior to the BSE discovery in Alberta), 139,161 entered from Canada (one sheep was imported from New Zealand for breeding purposes). The sheep from Canada had an average value of \$83 per head, a price that implies that they were principally lambs for slaughter. January through May, 2003, the average value of lambs imported from Canada increased to almost \$105 per head, reflecting the strong demand and relatively tight supply. Market forces underlying the price increases have strengthened even further, with annual 2005 prices for choice slaughter lambs forecasted to range between \$125 and \$133 per head.²¹

In 2002, there were 3,092,000 head of sheep slaughtered under federal inspection, of which 2,944,000 head (95 percent) were lambs and yearlings.²² Thus, imports from Canada in that year of poor forage conditions supplied about 4.7 percent of lambs slaughtered.²³ Reinstatement of lamb imports from Canada under the rule will increase the supply of slaughter lambs, benefiting buyers through downward pressure on prices while increasing the competition for U.S. producers. An increase of less than 5 percent in the number of slaughter lambs is not expected to significantly affect these entities.

²¹ Based on a forecasted price for choice slaughter lambs, San Angelo, of \$92 to \$98 per cwt (USDA ERS, "Livestock, Dairy, and Poultry Outlook," LDP-M-124, October 26, 2004) and average weight of 136 pounds per lamb.

²² USDA, *Agricultural Statistics*, table 7-53.

²³ $139,161 \text{ head} / 2,944,000 \text{ head} = .047$.

There were 11,874 goats imported by the United States in 2002, of which 9,948 head (84 percent) were supplied by Canada. Goats slaughtered at federally inspected slaughtering establishments that year numbered 595,501 head.²⁴ Thus, goat imports from Canada in 2002 were equivalent to less than 2 percent of the total number slaughtered. Nearly 6,000 goats were imported from Canada during the first five months of 2003. Resumption of goat imports from Canada may cause some drop in price, but the impact for affected parties will not be large.

The same inspection and certification requirements will hold for feeder lambs and goats imported from Canada as for feeder cattle, which will lead to a small cost. Assuming the same time per truck load is required for inspection and certification and an average of 200 feeder lambs or goats per shipment, direct salary costs will be about \$1.20 per lamb.²⁵ Based on 2002 imports of about 139,000 lambs, assuming nearly all of the imported animals that year were slaughter lambs, and assuming the direct salary costs represent half of inspection and certification expenses, the overall cost will be about \$333,600.²⁶

Lamb and goat meat. Lamb meat imports from Canada are entering this year, by permit, at a rate comparable to previous years. Sheep and lamb meat valued at \$96,000 was imported from Canada January through April, 2004, compared to imports valued at \$102,000 for the same period in 2003. As in the case of beef, additional lamb meat imports attributable to the rule will probably be relatively small. The quantity of lamb meat imported from Canada compared to overall U.S. imports is very small: for 2002, about 129 metric tons, compared to 73,856 metric

²⁴ USDA NASS, "Livestock Slaughter, 2002 Summary," Mt An 1-2-1(03), March 2003.

²⁵ \$60,000 per year divided by 2,000 hours per year equals \$30 per hour, or \$0.50 per minute. 2 hours, or 120 minutes, per inspection per truck load divided by 200 lambs per truck load equals 0.6 minutes per inspection per lamb. 0.6 minutes per inspection per lamb multiplied by 4 inspections equals 2.4 minutes per lamb. 2.4 minutes per lamb times \$0.50 per minute equals \$1.20 per lamb.

²⁶ Unlike the cattle inventory in Canada, a large backlog of marketable feeder lambs has not accumulated, given the much shorter time for maturity. Canadian sheep and goat breeding inventories have grown with the retention of additional females. This cost approximation does not account for other business expenses that may be incurred because of the Form 1-27 requirements or costs associated with possible movement delays.

tons from all sources, or about 0.17 percent. For both of these reasons, reestablished lamb meat imports will have a small effect on the U.S. supply. Goat meat has not been imported from Canada for the past three years.

Farmed cervid meat and live cervids. We do not know the quantity of Canadian cervids that may be imported for immediate slaughter or for feeding because of the rule. In the United States, there are about 150,000 elk on 2,300 farms, valued at \$375 million, and about 550,000 deer on 11,000 farms, with a value greater than \$900 million.²⁷ Elk and deer are farmed for breeding stock, velvet antler, meat, and sales to game parks and exhibits.²⁸ U.S. elk and deer inventories dwarf historic levels of "other mammal" imports from Canada (a trade data category that includes non-ruminants as well as ruminants such as cervids). Effects of allowing their importation from Canada to resume are expected to be minimal.

In 2002, the United States imported deer meat valued at \$138,000, all of which was supplied by Canada. Elk and deer meat, or venison, is a low-fat, low-cholesterol product that is marketed primarily to gourmet restaurants. The value of U.S. produced cervid meat is not known. However, given that the estimated value of U.S. farmed elk and deer inventories exceeds \$1.2 billion, imports of cervid meat from Canada under the rule in amounts comparable in value to the 2002 imports are expected to have only a small effect on the U.S. supply of venison and other cervid products.

Bovine tongues and livers. Imports of frozen bovine tongues and livers by the United States in 2002 were valued at \$7.07 million and \$643,000, respectively.²⁹ The share of imports supplied by Canada was 30 percent for tongues (valued at \$2.15 million) and 47 percent for

²⁷ APHIS Regulatory Impact Analysis for docket number 00-108-2, May 20, 2003.

²⁸ Velvet antler, considered a medical and dietary aid, is produced primarily for Asian markets.

²⁹ U.S. Census Bureau data specifies import and export values for frozen bovine tongues and livers, but not for fresh/chilled tongues and livers. Therefore, the values shown here only partially describe U.S. trade for these products.

livers (\$300,000). U.S. exports of these commodities significantly outweigh imports. Frozen bovine tongues exported in 2002 were worth \$85.6 million (12 times the value of imports), and frozen bovine liver exports were worth \$64.2 million (nearly 100 times the value of imports). In light of these import and export values, allowing bovine tongue and liver imports from Canada to resume will have a small effect on the U.S. market for these commodities, all the more so, given the current excess supply in the United States because of other countries' import restrictions.

U.S. Exports

U.S. exports of beef and beef variety meats are a fraction of what they were before the Washington BSE discovery.³⁰ Most export markets remain closed, including Japan and South Korea, our two largest markets besides Mexico. Exports to Canada and Mexico are at reduced volumes. Total beef and veal exports forecast for 2004 are 446 million pounds, compared to exports of 2,523 million pounds in 2003.³¹ Forgone export earnings are even larger than quantity measures would suggest, given the export premiums paid for variety meats in particular. U.S. exports of beef variety meats accounted for nearly 20 percent of the value of total beef exports in 2000.³²

The rule will, of course, have no immediate effect for beef exports to countries that currently prohibit beef imports from the United States. It could influence those countries' decisions regarding future resumption of beef imports from the United States, but we have little basis for assessing whether the influence will be positive or negative.

On the one hand, the rule may be viewed by other countries as increasing BSE risks in the United States and therefore may prolong market closures, even though there would be no

³⁰ Beef variety meats refers to organs and other products not considered muscle cuts, such as liver, tongue, intestine, and tripe.

³¹ USDA ERS Livestock, Dairy, and Poultry Outlook, LDP-M-124, October 26, 2004.

³² "Methodology and Results of the Value of Beef Exports Analysis," United States Meat Export Federation, Denver, CO, July 2002.

scientific basis. Continued prohibition on entry of U.S. beef, especially by Asian markets, would mean continued premium losses over and above the domestic value of the forgone exports. The lack of comparably priced domestic demand for some variety meats such as beef tongue means diversion to the domestic market takes place at a discount.³³ As a simple numerical example, we calculate average annual beef variety meat exports other than to Mexico for the years 2001 through 2003, to have been about 1.1 million tons. In February 2004, Cattle-Fax and the National Cattlemen's Beef Association estimated the market impact for forgone variety meat exports to be a price decline of \$3 to \$4 per cwt or \$66 to \$88 per ton. Since that time, byproduct values in the United States have recovered by approximately one-third. Applying a \$44 to \$59 per ton loss of value to the estimated 1.1 million tons of beef variety meat exports affected yields annual premium losses due to restricted exports of \$48.4 million to \$64.9 million.

More probably, resumption of imports from Canada may be seen by other countries as reflecting the United States' conviction as to the safety of U.S. and Canadian beef exports, since the same or equivalent sanitary measures for BSE prevention are enforced by both countries. As reported by the National Cattlemen's Beef Association, "...one message has been consistent throughout [in government and private sector discussions in other countries]. These countries are not inclined to import any beef from the United States that the United States is not willing to import from Canada."³⁴

This rule may influence current restrictions on U.S. beef imports by several of our trading partners. The direction and extent of its effect for U.S. beef exports may vary from one country to another.

³³ According to the U.S. Meat Export Federation, many of the cow tongues that would typically be sold to Japan are now being made into dog food (*The Washington Post*, June 11, 2004).

³⁴ "Special report: How do Canadian beef imports affect our business?" Gregg Doud, Chief Economist, National Cattlemen's Beef Association, n.d.

5. Alternatives to the Rule

Alternatives to the rule would be to leave the regulations unchanged, that is, continue to prohibit entry of ruminants and most ruminant products from regions of minimal BSE risk (other than products allowed entry under permit), or modify the commodities and/or import requirements specified in the rule. By maintaining current import restrictions, the net benefits of reestablishing imports from Canada of fed and feeder cattle and beef not by permit, and other affected commodities would not be realized. Two possible modifications would be to (i) require that imported beef come from cattle slaughtered at less than 30 months, or (ii) continue to prohibit the entry of live ruminants.

Beef only from Cattle less than 30 Months

The proposed rule would have required beef imports from Canada to come from cattle slaughtered at less than 30 months. In a notice that reopened the comment period for the proposed rule, APHIS stated that it no longer believed that it would be necessary to require that beef imported from BSE minimal-risk regions be derived only from cattle less than 30 months of age, provided "measures are in place to ensure that [specified risk materials] are removed when the animals are slaughtered, and that such other measures as are necessary are in place."³⁵ Canada is removing specified risk materials (SRMs) at slaughter and fulfilling other required measures.

Requiring that beef come only from cattle slaughtered at less than 30 months would continue the prohibition on Canadian cows and bulls as source animals, and eliminate impacts of the rule for beef. Continuing to limit imports from Canada to veal from calves and beef from steers and heifers would cause Canada's cow and bull inventories to continue to grow and exert downward pressure on Canada's cow prices, which are already well below U.S. price levels.

³⁵ *Federal Register*, March 8, 2004: 10633-10636.

Canadian suppliers would be prevented from participating in the current high-demand market in the United States for processing beef, and U.S. processors would not benefit from the additional source of supply during a time when U.S. cow slaughter is cyclically low.

This alternative would maintain the status quo in terms of beef imports, other than removing permit requirements and broadening the commodities allowed to be imported beyond boneless beef. In terms of the quantity of beef imported, we expect that these changes would have a very small effect, given the large share of Canada's historic exports that enter currently.

This alternative would affect cattle imports from Canada by removing the incentive for Canadian cows to be slaughtered in place of fed cattle, since the processing beef would not be allowed to be imported by the United States; there would not be the displaced fed cattle assumed to be available for import under the rule. Fed cattle imports would be fewer than with the rule, especially in 2005, and price and welfare impacts, including net benefits, would be smaller, as shown in Table 5.

Present values in 2005 dollars when using a 3 percent discount rate, for example, may range from \$2.30 billion to \$2.50 billion for consumer gains, and from \$2.25 billion to \$2.44 billion for producer losses, for a net benefit of from \$52.0 million to \$56.3 million (with the rule: \$2.86 billion to \$3.11 billion for consumer gains, and \$2.79 billion to \$3.03 billion for producer losses, for a net benefit of from \$71.7 million to \$77.5 million). Taking the midpoints of these ranges, consumer gains would be \$2.40 billion, producer losses would be \$2.36 billion, and net benefits, \$54.1 million (with the rule: consumer gains, \$2.98 billion; producer losses, \$2.91 billion; and net benefits, \$74.6 million). Midpoints of annualized values over the five years, in 2005 dollars when using a 3 percent discount rate, are consumer gains of \$524 million, producer losses of \$512 million, and net benefits of \$12 million (with the rule:

consumer gains of \$651 million, producer losses of \$635 million, and net benefits of \$16 million). When using the 7 percent discount rate and 2005 dollars, the midpoints of the present value ranges are: consumer gains, \$2.06 billion; producer losses, \$2.02 billion; and net benefits, \$47.4 million (with the rule: consumer gains, \$2.59 billion; producer losses, \$2.53 billion; and net benefits, \$66.3 million). The annualized midpoint values at 7 percent, 2005 dollars, are: consumer gains, \$503 million; producer losses, \$492 million; and net benefits, \$11 million (with the rule: consumer gains, \$632 million; producer losses, \$616 million; and net benefits, \$16 million).

Table 5. Alternative of Canadian beef imports only from cattle less than 30 months: ranges and midpoints of present and annualized value estimations of effects of the rule for fed cattle, feeder cattle, and beef, discounted at 3 percent and 7 percent, in 2005 and 2001 dollars, 2005-2009

<u>Present Value</u>	<u>Discount Rate</u> (Percent)	<u>Low, High, and Midpoint</u>	<u>Changes in Welfare</u>		
			<u>Consumer</u>	<u>Producer</u>	<u>Net</u>
(Thousand Dollars)					
2005 Dollars	3	L	\$2,298,300	-\$2,246,311	\$51,989
	3	H	\$2,500,298	-\$2,444,009	\$56,289
	3	M	\$2,399,299	-\$2,345,160	\$54,139
	7	L	\$1,979,272	-\$1,933,724	\$45,548
	7	H	\$2,149,089	-\$2,099,863	\$49,226
	7	M	\$2,064,181	-\$2,016,794	\$47,387
2001 Dollars	3	L	\$2,166,147	-\$2,117,148	\$48,999
	3	H	\$2,356,531	-\$2,303,479	\$53,052
	3	M	\$2,261,339	-\$2,210,314	\$51,026
	7	L	\$1,865,464	-\$1,822,535	\$42,929
	7	H	\$2,025,516	-\$1,979,121	\$46,395
	7	M	\$1,945,490	-\$1,900,828	\$44,662
<u>Annualized Value</u>					
2005 Dollars	3	L	\$501,844	-\$490,492	\$11,352
	3	H	\$545,951	-\$533,661	\$12,291
	3	M	\$523,898	-\$512,076	\$11,821
	7	L	\$482,726	-\$471,617	\$11,109
	7	H	\$524,143	-\$512,137	\$12,006
	7	M	\$503,434	-\$491,877	\$11,557
2001 Dollars	3	L	\$472,988	-\$462,289	\$10,699
	3	H	\$514,559	-\$502,975	\$11,584
	3	M	\$493,774	-\$482,632	\$11,142
	7	L	\$454,969	-\$444,499	\$10,470
	7	H	\$494,005	-\$482,689	\$11,315
	7	M	\$474,487	-\$463,594	\$10,893

Note: The present and annualized values are taken from Appendixes U, based on assumed import ranges for the backlog.

Under this alternative, the near-term price impacts for fed cattle is smaller than with the rule because of the fewer cattle imported, as shown in Table 6, using baselines for the first two quarters of 2005. Impacts for feeder cattle would be the same as with the rule, since they are unaffected by whether or not there are fed cattle imported that have been displaced from slaughter in Canada. For fed cattle, the decrease in price when the backlog is assumed to enter

entirely within one quarter is estimated to be 4.4 percent (with the rule: 5.4 percent), assuming a price elasticity of supply of 0.61 and a price elasticity of demand of -0.76. When the backlog of fed cattle is assumed to enter over two quarters using the same price elasticities, the decline in price is 2.8 percent (with the rule: 3.8 percent).

Table 6. Alternative of Canadian beef imports only from cattle less than 30 months: estimated near-term price declines for fed cattle and feeder cattle due to the resumption of cattle imports from Canada

<u>Category of Cattle</u>	<u>Period</u>	<u>Price Elasticities</u>	<u>Decrease in Price</u> (Dollars per cwt, live weight)	<u>Percentage Decrease in Price</u>
Fed cattle	1 st Q, 2005	s 0.61, d -0.76	\$3.62 - \$3.88	4.4%
	1 st Q, 2005	s 0.30, d -0.38	\$4.61 - \$4.95	5.6%
	1 st and 2 nd Q, 2005	s 0.61, d -0.76	\$2.31 - \$2.54	2.8%
	1 st and 2 nd Q, 2005	s 0.30, d -0.38	\$2.95 - \$3.24	3.6%
Feeder cattle	1 st Q, 2005	s 0.40, d -0.89	\$3.01 - \$3.21	3.3%
	1 st Q, 2005	s 0.20, d -0.44	\$4.02 - \$4.28	4.4%
	1 st and 2 nd Q, 2005	s 0.40, d -0.89	\$1.72 - \$1.85	1.9%
	1 st and 2 nd Q, 2005	s 0.20, d -0.44	\$2.32 - \$2.49	2.5%

Note: Based on supply, demand, and price data shown in Appendix A, and import quantities shown in Appendix T, assuming the full backlog of Canadian cattle is imported. The periods, based on the first quarter or the first two quarters of 2005, are the times during which we assume the backlog is imported into the United States. Price and percentage decreases are taken from Appendix W.

The less elastic the price elasticities (the less responsive sellers and buyers are to price changes), the larger the expected percentage changes in price. When the supply and demand elasticities are halved (supply elasticity of 0.30, and demand elasticity of -0.38), for example, and fed cattle are assumed to enter within two quarters, the decline in price increases to 3.6 percent (with the rule: 4.8 percent), compared to a decrease of 2.8 percent (with the rule: 3.8 percent) when a supply elasticity of 0.61 and demand elasticity of -0.76 are used.

Possible effects of this alternative for future U.S. exports would differ from possible effects with the rule only if countries perceived BSE-risks associated with Canadian beef produced from cattle slaughtered at more than 30 months of age as different from those associated with Canadian beef produced from cattle slaughtered at less than 30 months of age. Removal of SRM at slaughter and other required risk-mitigating measures of the rule will ensure that beef entering from Canada satisfies animal health criteria the same as or equivalent to those required in the United States.

No Live Ruminants

Direct effects of this alternative would be equivalent to expected effects of the rule only for ruminant products. We would expect the same impact for beef as with the rule; imports of beef from cows would replace imports of beef from fed cattle, yielding for the five-year period 2005-2009, present value losses for consumers of between \$73.9 million and \$78.8 million, gains for producers of between \$73.7 million and \$78.5 million, and net welfare losses of between \$264,000 and \$283,000, compared to the baseline as shown in Appendix G (see Appendix U, 3 percent discount rate, 2005 dollars).

There would also be net benefits forgone by the continued prohibition on the importation of sheep and goats. Possible impacts of this alternative on future U.S. exports would likely be small, since it would maintain the current prohibition on imports of live ruminants from Canada.

In sum, the rule is preferable, in terms of expected net benefits, to the status quo (continuing to prohibit the entry of Canadian ruminants and the entry of Canadian ruminant products other than those allowed by permit), and to the two alternatives discussed: limiting beef imports to cattle slaughtered at less than 30 months or allowing entry of ruminant products but not live ruminants. Risks of BSE introduction would not be reduced to any known degree by

selecting one of the alternatives in place of the rule. We believe that listing Canada as a minimal-risk region subject to the required risk-mitigating measures is a balanced response, based on scientific evidence, to Canada's request that certain ruminant and ruminant product imports by the United States be allowed to resume.

6. Final Regulatory Flexibility Analysis

The Regulatory Flexibility Act of 1980 (Public Law 96-354) requires agencies to evaluate the potential effects of their proposed and final rules on small businesses, small organizations and small governmental jurisdictions.³⁶

Section 604 of the Act requires agencies to prepare and make available for public comment a final regulatory flexibility analysis (FRFA) describing the impact of final rules on small entities. Section 604(a) of the Act specifies the content of a FRFA. In this section, we address each of these FRFA requirements:

- A succinct statement of the need for, and objectives of, and rule;
- A summary of the significant issues raised by the public comments in response to the initial regulatory flexibility analysis, a summary of the assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments;
- A description of and an estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available;
- A description of the projected reporting, record keeping and other compliance requirements of the final rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record; and
- A description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the

³⁶ This section follows guidelines provided by Small Business Administration, Office of Advocacy, "A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act," May 2003.

alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.

A succinct statement of the need for, and objectives of, and rule

Included in Title 9 of the Code of Federal Regulations, Parts 93-96, are regulations that prohibit the importation of ruminants and most ruminant products (meat and certain other products and byproducts) from (1) regions where BSE exists and (2) regions that present an undue risk of introducing BSE into the United States because of import requirements less restrictive than those that would be acceptable for import into the United States or because of inadequate surveillance.

APHIS believes it is appropriate to recognize an additional category of regions that present a minimal risk of introducing BSE into the United States. This category will include (1) those regions in which a BSE-infected animal has been diagnosed, but in which measures have been taken that reduce the risk of BSE being introduced into the United States, and (2) those regions in which BSE has not been detected, but that cannot be considered BSE-free.

Canada has requested that APHIS consider resumption of ruminant and ruminant product imports into the United States, based on information regarding Canada's veterinary infrastructure; disease history; practices for preventing widespread introduction, exposure, and/or establishment of BSE; and measures taken following detection of the disease. This rule will amend the CFR by establishing a category of regions that present a minimal risk of introducing BSE into the United States. It will set forth the factors to be considered when listing a region as one of minimal risk, as well as required risk-mitigating measures. The rule will list Canada as

the only minimal-risk region at this time. Future requests received from other regions to be listed in this category will be evaluated.

A summary of the significant issues raised by the public comments in response to the initial regulatory flexibility analysis, a summary of the assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments

Issue: With regard to potential effects of the rule on small entities, economies of scale dictate that larger entities will be better able to absorb increased fixed costs on a per-unit basis. Segregation costs in packing and processing sectors will have a larger impact on smaller entities. It is believed that larger entities are better situated to absorb market volatility than smaller firms. The history of production agriculture has shown that smaller producers have higher costs of production and face higher risks associated with lower market prices. The economic analysis as proposed by USDA would have harsher consequences on smaller enterprises.

Response: APHIS agrees that larger entities will be better able to absorb costs associated with the rule than smaller entities, such as costs of segregating sheep and goats less than 12 months of age at designated feedlots. We expect entities that envisage a profit by doing so to make the capital investments and plan for the operating outlays that may be required to import ruminants from Canada.

Issue: The claim that the impacts on small business cannot be estimated due to lack of data is not correct. There is considerable data available from USDA's National Agricultural Statistics Service (NASS) on livestock inventories by operation size. There is clearly adequate data to define small business impact. APHIS should complete a more thorough economic analysis of these impacts, particularly in light of the events of December 2003. Such an analysis

should be made available for public comment before consideration of adoption of the proposed rule.

Response: APHIS showed in table 19 of the economic analysis for the proposed rule that the great majority of entities in industries expected to be directly affected by the rule are small, based on NASS data and Economic Census data. It is understood that effects of the rule will differ among entities, depending on specific business circumstances. APHIS does not have data that would allow a comprehensive analysis of potential economic effects for small entities beyond the price declines and welfare gains and losses that are described generally. We are unaware of NASS data or additional data available from the producer segment of the livestock industry that can be used to more finely examine these variations in impact. However, we do provide as an example possible effects of the rule on earnings by small beef cow operations.

Issue: Any resumption of Canadian live cattle imports should be carefully studied to ensure there is no negative impact on the U.S. cattle market. Such analysis should focus on specific geographic areas, especially Idaho and the Pacific Northwest.

Response: The various price and welfare effects described in the analysis are for the nation as a whole, because reestablished imports from Canada will not be restricted by region. However, it is recognized that regions of the United States that historically have been more closely associated with cattle imports from Canada can be expected to be more heavily affected by the rule. An example of possible effects on northern U.S. packing plants is referred to in the analysis of impacts on small entities.

A description of and an estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available

The resumption of ruminant and ruminant product imports from Canada will most importantly affect the cattle industry, reducing prices and increasing supplies. Entry of fed cattle (and fed sheep and goats) will benefit U.S. slaughtering establishments, and entry of feeder cattle (and feeder sheep and goats) will benefit feedlots. Also, entry of beef and other edible bovine products from cattle slaughtered at over 30 months will benefit some U.S. meat and meat product wholesalers and processors by providing an additional source of processing beef. These imports will also increase the competition for U.S. and foreign suppliers of these commodities.

The main industries expected to be affected by the rule are composed predominantly of small entities, as indicated by the 1997 Economic Census, the 2002 Census of Agriculture, and USDA's "Cattle on Feed" (February 20, 2004), and shown in the last column of Table 7. The small entities number in the hundreds of thousands, with the largest number cattle producers. For beef cattle ranching and farming, the 2002 Census of Agriculture indicates a total of about 657,000 operations, of which nearly 656,000 are considered small entities. For cattle feedlots, more than 91,000 of the approximately 93,200 total operations are small entities. For sheep and goat farming, 44,000 out of about 44,200 operations are considered small entities. Small entities similarly dominate, in terms of the percentage of operations, other affected industries, including animal slaughtering, meat and meat byproduct processing, and meat and meat product wholesaling.

Notwithstanding the prevalence of small entities, the concentrated structure of affected industries is well-documented. In the U.S. meatpacking industry, for example, four firms handle nearly 80 percent of all steer and heifer slaughter.³⁷ The cattle feedlot industry is also highly concentrated. Data from 2003 show that only 2 percent of feedlots have capacities greater than 1,000 head, and yet these larger feedlots market 85 percent of fed cattle.³⁸

Table 7. Small entity representation in industries that will be affected by the rule

Industry (NAICS code) ¹	SBA Size standard	Total Number of Establishments With Sales	Number within Size Standard	Percentage of Establishments that are Small Entities
Animal (except Poultry) Slaughtering (311611)	≤ 500 employees	1,393	1,329	95.4%
Meat Processed from Carcasses (311612)	≤ 500 employees	1,297	1,268	97.8%
Rendering & Meat Byproduct Processing (311613)	≤ 500 employees	240	240	100.0%
Meat & Meat Product Merchant Wholesalers (424470)	≤ 100 employees	3,393	2,919	86.0%
Cattle Feedlots (112112)	≤ \$1,500,000 annual receipts	93,205	>91,000	> 97.6%
Beef cattle ranching and farming (112111)	≤ \$750,000 annual receipts	657,015	> 655,757	> 99.8%
Sheep & Goat Farming (1124)	≤ \$750,000 annual receipts	44,189	> 44,040	> 99.6%

Sources: U.S. Census Bureau, 1997 Economic Census; USDA NASS, 2002 Census of Agriculture and "Cattle on Feed," February 20, 2004.

¹ North American Industrial Classification System.

As described in section 3, imports from Canada that would be allowed to resume are expected to have a larger effect on the fed cattle market than on the feeder cattle market. Prices

³⁷ MacDonald, James M., Michael E. Ollinger, Kenneth E. Nelson, and Charles R. Handy. "Consolidation in U.S. Meatpacking." USDA, Economic Research Service, Agricultural Economic Report No. 785, February 2000.

³⁸ USDA NASS, "Cattle on Feed," Mt An 2-1 (2-04), February 20, 2004.

and welfare of producers and suppliers will decline because of the additional supply and the welfare of consumers and buyers will increase. Net benefits of the rule will be positive.

The near-term analysis in section 3 provides some indication of the potential magnitude of the impact on prices for small-entity producers and processors during the one or two quarters when we might expect larger effects (due to the potential importation of the backlog).

Depending on the assumed elasticities of supply and demand and the period over which the backlog enters, the estimated near-term price declines could range from 1.9 percent to 4.4 percent for feeder cattle and from 3.8 percent to 6.9 percent for fed cattle, as shown in Table 3. For the year 2005, the model indicates a possible decline in feeder cattle prices of 1.3 percent, and a possible decline in fed cattle prices of 3.2 percent (Appendix J).

To give these average percentage price declines some perspective, we consider as an example their effect on earnings by small U.S. beef cow herds. Based on data from the 2002 Census of Agriculture, the average value of sales of cattle and calves by small-entity beef cow operations was about \$26,700.³⁹ Given the forecast feeder cattle baseline price for 2005 of between \$94 to \$100 per cwt (Appendix A), the 2005 estimated price decline of 1.3 percent would be equivalent to a decrease of between \$1.22 and \$1.30 per cwt, or a decrease in annual revenue of between \$326 and \$347, assuming no reduction in the number of cattle marketed.⁴⁰ This example abstracts from the wide range in size of small beef cow herds, but gives an indication of a possible average price impact of the rule for these operators in 2005. It should be

³⁹ 2002 Census of Agriculture, Volume 1, Chapter 1, Table 16. This table shows cattle and calf sales by beef cow herds categorized by herd size. Based on average sales, small-entity farms would, at most, comprise those operations having less than 1,000 head of cattle. The \$26,700 average value of sales for small beef cow herds is a weighted average, that is, it takes into account the larger number of smaller holdings and smaller number of larger holdings.

⁴⁰ $(\$26,700) (0.0122) = \326 . $(\$26,700) (0.013) = \347 .

recognized that while the decline in price would be a loss for producers, it would represent a gain for small-entity feedlot operators.

Beyond the general net welfare gains and price declines described in this analysis, there would likely be regional impacts not captured by the model. For example, among comments received on the proposed rule were ones that pointed out the historical reliance of some northern U.S. meat processing plants (and the communities they support) on cattle imports from Canada to maintain necessary throughput volumes. As noted elsewhere by the National Cattlemen's Beef Association, if imports from Canada do not resume, at least some of these facilities will not have the cattle numbers that will "allow them to efficiently compete with the feedlots and packing plants in the heart of the U.S. Without those Canadian cattle, some of those plants would close forcing northern cattle to be shipped hundreds of miles further to market with the cost of that additional freight coming out of those northern beef producers' pockets."⁴¹ Historical dependence of these processing facilities on cattle imports from Canada exemplifies economic ties with Canadian entities that existed prior to the prohibition on ruminant imports. Resumption of imports will enable trade relationships involving small-entity operations to be reestablished. A description of the projected reporting, record keeping and other compliance requirements of the final rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record

Among record keeping requirements of the rule will be the maintenance of inventory records at feedlots for Canadian livestock that are fed, and the monitoring of the movement of imported feeder cattle (and feeder lambs and goats). Following is a description of record keeping requirements at feedlots (using as an example the requirements for Canadian feeder

⁴¹ "On the North American Beef Market," Gregg Doud, Chief Economist, National Cattlemen's Beef Association, (n.d.).

lambs). Record keeping requirements for monitoring Canadian livestock movements are then discussed.

Example of Compliance Requirements for Lamb Feedlots. Feeder lambs and goats will be required to be imported to designated feedlots. To be approved to receive sheep or goats imported for feeding, a feedlot must have signed a written agreement with the Administrator of APHIS stating that the feedlot:

Will not remove eartags from animals unless medically necessary, in which case another eartag or other form of official ID will be applied and cross referenced in the records;

Will monitor to insure that all imported feeder animals have the required brand;

Will maintain records of the acquisition and disposition of all imported sheep and goats entering the feed lot, including the eartag number and all other identifying information, the age of each animal, the date each animal was acquired and the date each animal was shipped to slaughter, and the name and location of the plant where each animal was slaughtered;

Will maintain copies of the form issued for incoming animals and for animals moved to slaughter that list the official ID of each animal;

Will allow State and federal animal health officials access to inspect premises and animals and to review inventory records and other required files upon request;

Will keep required records for at least 5 years;

Will designate either the entire lot or designated pens within the lot as terminal for sheep and goats to be moved only directly to slaughter at under 12 months of age, and

Agrees that if inventory can not be reconciled or if animals are not moved to slaughter as required the approval of the feedlot will be withdrawn.

Operators of small-entity feedlots will be affected by these requirements only if they

decide to have their businesses classified as designated feedlots. Individual feedlots will determine for themselves if the expected returns from feeding Canadian lambs or goats would be profitable, taking into consideration the costs associated with inventory record keeping and designation.

Monitoring the Movement of Feeder Cattle. The rule requires that cattle (and sheep and goats) from a BSE minimal-risk region imported into the United States for feeding and then slaughter must be moved from the port of entry to an identified feedlot. Individual identification, permanent marking indicating the country of origin, and movement only under an APHIS-issued movement permit (the physical destination of the cattle must be identified on all documents described in § 93.407 and on APHIS Form VS 17-130) will allow monitoring and tracking of the imported cattle as they move from the port of entry to the identified feedlot and then to a recognized slaughtering establishment.

Private operations including small entities may be affected by time delays that may occur because of monitoring activities. Even though private operations including small entities will not bear direct compliance costs of monitoring movements, we describe here the process to give an indication of the time the process may involve.

Means of conveyance containing cattle for feeding and then slaughter will be presented to an APHIS port veterinarian at a border port. These cattle must be accompanied by the health certificate from the region of origin (in this case Canada). The health certificate must list the eartag number of each of the animals in the shipment. Additionally, the animals must be accompanied by the certification required from the country of origin regarding the age, feeding history, and identification of the cattle. The means of conveyance must have been sealed in the region of export with seals of the national government of the region of export.

The APHIS port veterinarian will review the paperwork and inspect the shipment to ensure that it is being imported in compliance with the regulations. The APHIS port veterinarian will then complete and sign APHIS Form VS 17-30, “Report of Animals, Poultry, or Eggs Offered for Importation.” (This is a standard form completed by APHIS port veterinarians as certification of the inspection and release of animals offered for importation from any region.) The APHIS port veterinarian will also complete and sign APHIS VS Form 17-130, “Permit for Movement of Restricted Animals,” which will authorize the movement of the animals to a feedlot. The APHIS VS Form 17-130, which must identify the physical location of the feedlot and the individual responsible for the movement of the animal, must also be signed by the owner or the shipper of the animals, to certify that the livestock will be delivered to the consignee without diversion.

The cattle must be moved as a group to the feedlot indicated on the APHIS VS Form 17-130. When the cattle arrive at the feedlot, the seal must be broken only by an accredited veterinarian or by a State or USDA representative or his or her designee. The person breaking the seal will indicate on the APHIS VS Form 17-130 where and when the animals were received and the number of animals received, as well as the date and time the seal was broken. The form will be signed by the person breaking the seal and a copy sent to the APHIS Area Office or Regional Office. APHIS or State officials may spot-check this process at the feedlot. The feedlot operator must be able to account for all incoming cattle from BSE minimal-risk regions.

When the cattle are to be sent to slaughter, an accredited veterinarian or a State or USDA employee must complete APHIS VS Form 1-27 at the feedlot and seal the means of conveyance. The APHIS VS Form 1-27, which must identify the physical location of the recognized slaughtering establishment and the individual responsible for the movement of the animal, must

also be signed by the owner or the shipper of the animals, certifying that the livestock will be delivered to the consignee without diversion. This APHIS Form VS 1-27 must accompany the cattle to the slaughtering establishment, along with a copy of the APHIS VS Form 17-130 and the health certificate that accompanied the animals from the port of entry to the feedlot. Upon arrival of the means of conveyance at the slaughtering establishment, a USDA representative will break the seal, complete the APHIS VS Form 1-27, and return all the paperwork that accompanied the animals to either the APHIS Area Office or Regional Office.

Following implementation of the National Animal Identification System currently under development, the effectiveness of this tracking system will be reevaluated. In recognition of the possibility that alternative effective means of monitoring movement may be developed, the final rule provides that animals shipped must be accompanied by the movement documentation described above or other movement documentation deemed acceptable by the Administrator. The requirements in this final rule for the movement of feeder sheep and goats from a BSE minimal-risk region from the port of entry to a feedlot and then to slaughter are the same as those described above for the movement of cattle.

A description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected

APHIS has not made specific changes to the rule in order to minimize impacts on small entities. We have considered alternatives to the rule, as described in section 5. The alternatives, whether leaving the regulations unchanged or modifying the commodities and/or import

requirements specified in the rule, would benefit certain categories of small entities while harming others. For example, a continued prohibition on the importation of Canadian feeder cattle would benefit small-entity U.S. suppliers of feeder cattle, but not small-entity U.S. buyers of these same livestock. Estimated price declines, particularly in the near term, will cause economic losses for some entities and at the same time benefit other entities. Overall, the analysis indicates the rule will have a net positive effect for the United States, while maintaining the sanitary safety of U.S. livestock.